



CITY OF MORGAN HILL FINAL REPORT Comprehensive Water & Wastewater Rate Study

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SECTION 1. PURPOSE AND OVERVIEW OF THE STUDY

PURPOSE

The City of Morgan Hill (“City”) retained NBS in June 2015 to conduct comprehensive water and wastewater rate studies for a number of reasons, including meeting long-term revenue requirements, ensuring revenue stability in water rates, providing adequate funding for capital improvements, and ensuring rates comply with applicable laws, including Proposition 218. The rates developed in this study meet basic Proposition 218 (Prop 218) requirements and were developed based on industry standards, including recent court rulings, such as the California Appellate Court ruling in the San Juan Capistrano case¹ affecting how the cost basis for water rates should be established. This report is provided with the intent of assisting the City to maintain transparent communications with its residents and businesses.

In developing proposed new water and wastewater rates, NBS worked cooperatively with City staff and the City Council in developing rate study alternatives and results. Review of study results and recommendations included two City Council workshops and subsequent public meetings with the City Council. The Council reviewed recommendations and provided NBS and City Staff with direction and feedback. Based on input from the City Council and City Staff, NBS recommends the City adopt the proposed water and wastewater rates summarized in this report.

CITY OF MORGAN HILL BACKGROUND

Water Utility

The City of Morgan Hill is a general law city with a council-manager form of government, located in southern Santa Clara Valley, approximately 12 miles south of San Jose, 10 miles north of Gilroy, and 15 miles inland from the Pacific Coast. The Valley is approximately 4 miles wide and is surrounded by the Santa Cruz mountain range to the west, and the Diablo mountain range to the east.

The City of Morgan Hill provides water service to approximately 13,500 metered customers inside and outside the city limits. The majority (about 86%) of the water utility’s customers are single and multi-family residential users. Most recent records indicate these residential households use approximately 70% of total water sold; businesses, commercial, industrial, government, institutional, and landscape customers use the remaining 30%.

The City’s municipal water source is 100% from ground water provided through 17 wells ranging in depth from 220 feet to 530 feet. The water system also includes 10 booster stations, 12 storage tanks, 1,927 fire hydrants, and over 180 miles of water pipeline. Sustaining the groundwater supply is dependent upon the overall groundwater management program administered by the Santa Clara Valley Water District (SCVWD). SCVWD imports water from the Sacramento/San Joaquin Delta through a series of channels, reservoirs, pipes and pumps and re-charges the groundwater table by pumping water into strategically located re-charge basins.

Wastewater Utility

The Wastewater Operations Division protects public health and safety by ensuring that wastewater is properly collected and transported to the South County Regional Wastewater Authority (SCRWA) treatment facility in Gilroy, CA, which is owned and operated under a Joint Powers Agreement (JPA) between the Cities of Morgan Hill and Gilroy.

The City of Morgan Hill owns, and therefore funds, 41.9% of the capacity at the SCRWA wastewater treatment facility. The City’s share of SCRWA’s annual operations and maintenance costs is based on the

¹ *Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano, Opinion G048969, Super. Ct. No 30-2012-00594579, Filed April 20, 2015.*

actual prior year annual flow as recorded by a master sewer flow meter located in the sewer trunk line at the southern end of Morgan Hill.

The City owns and operates 900,000 feet of sewer pipelines and 14 lift stations. Residential and commercial customers served by the city's wastewater division are connected to the City's wastewater collection system through private sewer laterals², which are not part of the public system, and therefore not maintained by the City.

OVERVIEW OF THE STUDY

Key Issues Addressed – In addition to ensuring that water and wastewater rates collect revenue sufficient to meet the annual operating and capital improvement plans, there are a number of key issues that were specifically addressed in this study, including:

- **Statewide Conservation** – The State of California has experienced recent drought-related cutbacks³ (25% Statewide) and the City of Morgan Hill was mandated to reduce water consumption by 28% beginning in April 2015. The City has set their conservation target to 30%, and customers are exceeding both these conservation targets⁴. Current and projected future consumption levels were closely evaluated in this study.
- **Long-Term Conservation** – The assumptions and recommendations contained in this study are not a short term response to the drought. They assume that water supplies will continue to be limited in the future and that customers will reduce consumption accordingly, in the long-term.
- **Overall Rate Design** – In the context of drought-related conservation, the City Council and staff have significant concerns about the fairness, equity and the impacts of rate increases on customer bills. Therefore, the overall rate design, including the amount of revenue collected from fixed monthly charges vs. volumetric rates, were carefully examined; after evaluating numerous rate alternatives, the proposed rate design is one that collects 50% of rate revenue from fixed charges and 50% from volumetric rates.
- **Financial Planning** – The longer-range financial plans for the water and wastewater utilities were closely examined and adjusted to best meet annual operating expenses, debt covenants, capital improvement costs and broader financial management concerns.

Recommendations – NBS recommends the City take the following actions:

- Adopt the long-range financial plan that NBS developed, including the projected revenues, expenditures and annual net revenue requirements.
- Adopt recommended reserve fund targets.
- Provide the normal legal review of the recommended rates by a qualified attorney.
- Consider adopting zonal surcharges, which allocate the additional costs that customers in these elevation zones require in order to provide them service.
- Adopt the water and wastewater service rates proposed in this report.
- Proceed with Proposition 218 noticing requirements necessary for legal adoption and implementation of the proposed rates.

² A private sewer lateral extends from the building being served to the city's sewer main.

³ State Water Resources Control Board, Resolution 2015-0032.

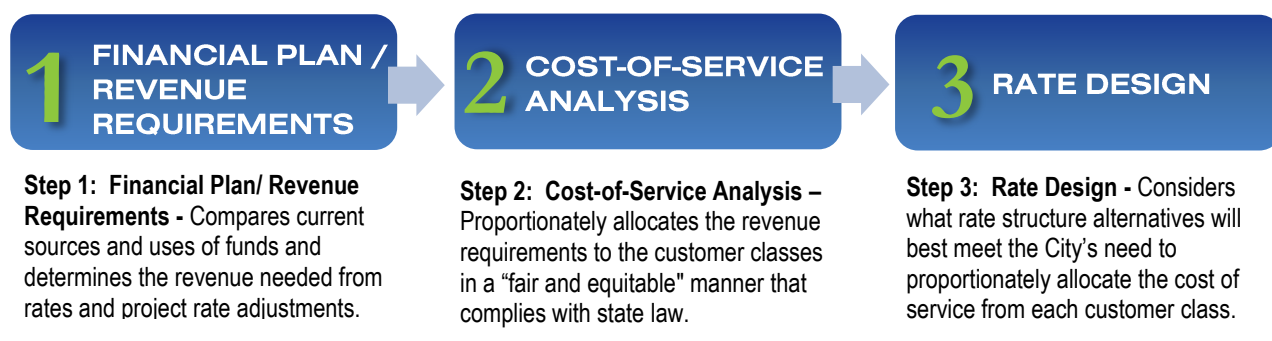
⁴ As of the October 2015 State Water Resources Control Board Urban Water Supplier Data report.

RATE STUDY METHODOLOGY

Components of the Rate Study Methodology – A comprehensive utility rate study typically encompasses three major components: (1) preparation of a financial plan which identifies the net revenue requirements for the utility; (2) analysis of the cost to serve each customer class, and; (3) the rate structure design.

These three steps, which are shown in **Figure 1**, are intended to follow industry standards and reflect the fundamental principles of cost-of-service rate making embodied in the American Water Works Association (AWWA) Principles of Water Rates, Fees, and Charges⁵, also referred to as the Manual M1. These steps address general requirements for equity and fairness. They also address requirements under California Constitution article XIII D, Section 6 (commonly referred to as Proposition 218) that rates not exceed the cost of providing the service and be proportionate to the cost of service for all customers. In terms of the chronology of the study, these three steps represent the order they were performed in this study.

Figure 1. PRIMARY COMPONENTS OF A RATE STUDY



As a part of this rate study, NBS projected revenues, expenditures, developed net revenue requirements, performed cost-of-service rate analyses, and prepared new water and wastewater rates. Rate increases -- or more accurately, increases in the total revenue collected from water and wastewater rates -- are recommended for both the water and wastewater utilities. The following sections in this report present an overview of the methodologies, assumptions, and data used along with the financial plans and rates developed during this study.

Rate Design Criteria – Several criteria are typically considered in setting rates and developing sound rate structures. The fundamentals of this process have been documented in a number of rate-setting manuals, such as the AWWA Manual M1. The foundation for evaluating rate structures is generally credited to James C. Bonbright in the *Principles of Public Utility Rates*⁶ which outlines pricing policies, theories, and economic concepts along with various rate designs. The following is a simplified list of the attributes of a sound rate structure:

- Rates should be easy to understand from the customer’s perspective.
- Rates should be easy to administer from the utility’s perspective.
- Rates should promote the efficient allocation of the resource.
- Rates should be equitable and non-discriminating (i.e., cost based).
- There should be continuity in the rate making philosophy over time.

⁵ *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1*, AWWA, sixth edition, 2012.

⁶ James C. Bonbright; Albert L. Danielsen and David R. Kamerschen, *Principles of Public Utility Rates*, (Arlington, VA: Public Utilities Report, Inc., Second Edition, 1988), p. 383-384.

- Addressing other utility policies (e.g., encouraging conservation & economic development).
- Rates should provide month-to-month and year-to-year revenue stability.

The following section covers basic rate design criteria that NBS and City staff considered as a part of their review of the rate structure alternatives.

Rate Structure Issues – The fundamental starting point in considering rate structures is the relationship between fixed costs and variable costs. Fixed costs typically do not vary with the amount of water consumed. Debt service and City personnel are examples of a fixed cost. In contrast, variable costs such as the cost of purchased water, chemicals and electricity tend to change with the quantity of water sold. The vast majority of rate structures contain a fixed or minimum charge in combination with a volumetric charge.

Key Financial Assumptions

Following are the key assumptions used in the water and wastewater rate analyses:

- **Funding of Capital Projects** – After the City's extensive review of the planned capital improvement projects (CIP) and funding requirements, the City has decided that the water and wastewater utility will fund the currently planned CIP, as shown in Appendices A and B to this report. The capital improvement projects included in the rate program are designed to keep existing infrastructure in good repair and maintain current service levels.
- **Reserve Targets** – Target reserves for operations and maintenance (O&M) and capital system replacement, which essentially follow industry standards for utility fund management, are set at the following levels for the water and wastewater utilities:
 - ✓ Operating Reserve – 90-days of O&M expenses.
 - ✓ System Replacement Reserve – approximately 3.0% of net assets.
 - ✓ Rate Stabilization Reserve – equal to 20% of estimated rate revenue.
- **Inflation and Growth Projections:**
 - ✓ Customer growth is based on adding 250-435 equivalent residential units per year, for each utility. This translates to approximately 2.0% average annual growth rate over the next five years.
 - ✓ General costs (such as professional and contractual services, fuel, vehicle maintenance, etc.) are inflated at 3% annually.
 - ✓ Operating expenses are inflated at a rate of approximately 3% - 4% annually, and include chemicals purchased, energy, and internal transfers.
 - ✓ Labor costs are inflated at 5% annually and include health and retirement benefits for both utilities.
 - ✓ No inflation is added to other budget items, such as late fee revenue, lease income, and miscellaneous fees.

The next two sections discuss the water and wastewater rate studies.

SECTION 2. WATER RATE STUDY

A. KEY WATER RATE STUDY ISSUES

The water rate analysis was undertaken with a few specific objectives, including:

- Generating sufficient revenue to meet projected funding requirements.
- Increasing the percent of water rate revenue collected from fixed monthly charges vs. volumetric rates to improve revenue stability. Currently the City's water rates collect approximately 19% of rate revenue from fixed charges and 81% from volumetric rates. Particularly in light of the City's significant conservation of approximately 40% to date this year, the City needs to ensure the water utility is collecting adequate revenues; increasing the percentage of rate revenue collected from fixed charges helps achieve this objective.
- Developing fixed charges based on meter size and separating Single- and Multi-Family Residential customers from Non-Residential customers. This helps improve overall equity and better reflects the cost-of service among customer classes in the water utility with different usage characteristics.

NBS developed multiple water rate alternatives over the course of this study; all were developed using industry standards and cost-of-service principles. The rate alternative recommended in this report reflects the input from City staff and the City Council.

The fixed and volume-based charges calculated were based on the net revenue requirements, number of customer accounts, water consumption, and other City-provided information. The following are the basic components included in this analysis:

- **Developing Unit Costs:** The water revenue requirements were "functionalized" into five categories: (1) customer service costs; (2) fixed capacity costs; (3) variable (or volume-based) costs; (4) fire protection costs; and (5) zonal-specific costs. Unit costs for each of these functions were determined based on allocations to functional areas, which reflect water consumption, peaking factors, number of accounts by meter size, and customer class.
- **Determining Revenue Requirements by Customer Class:** The total revenue that should be collected from each customer class was determined using the unit costs and the total units belonging to each class. For example, customer costs are allocated based on number of meters, while volume-related costs are allocated based on the water consumption for each class. Once the costs are allocated and the revenue requirement for each customer class is determined, collecting these revenue requirements from each customer class is addressed in the rate design task.
- **Rate Design and Fixed vs. Variable Costs:** In all rate design alternatives, the revenue requirements for each customer class are collected from both fixed service charges and volumetric (commodity) charges. The cost of service analysis indicated that approximately 73% of the City's costs are fixed and 27% are variable. Although state regulatory agencies, such as the California Urban Water Conservation Council, recommend that water utilities collect at least 70% of rate revenue from volumetric rates, many utilities prefer to collect less than 70% from volumetric rates. As a compromise, NBS recommends the City adopt the rates proposed in this report where 50% of revenue is collected from fixed charges and 50% from volumetric charges; this better represents the utility's true cost structure and improves revenue stability compared to the City's current rates.

B. WATER UTILITY REVENUE REQUIREMENTS

It is important for municipal utilities to maintain reasonable reserves in order to handle minor emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. Rate increases are governed by the need to meet operating and capital costs, maintain adequate debt coverage, and maintain sufficient reserve funds. The current condition of the City's water utility, with regard to these objectives is as follows:

- **Meeting Net Revenue Requirements:** The City's water utility is currently running a structural deficit, largely due to the State mandated conservation measures. If no rate increases are implemented, the utility will spend down all reserves and have a negative fund balance in FY 2017/18. For Fiscal Year 2015/16 through 2019/20, the projected net revenue requirement (i.e., total annual expenses plus rate-funded capital costs, less non-rate revenues) is approximately \$8.7 million to \$11.4 million. Recommended annual rate increases of 9.0% in FY 2015/16 and 7.25% increases for the following four consecutive years are needed to adequately fund operating and planned capital expenditures. These rate increases enable the water utility to meet the minimum debt coverage target of 1.20, as required for the 2014 Water Refunding & CIP Revenue Bonds.
- **Building and Maintaining Reserve Funds:** The City should maintain sufficient reserves for the Water Utility. NBS recommends that the City adopt and gradually build up reserve levels in order to meet the following reserve fund target balances:
 - ✓ **Operating Reserve (Fund 650)** should normally equal 90 days of the Utility's budgeted annual operating expenses, which is equal to a three-month (or 25%) cash reserve for normal operations. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures, such as those caused by weather patterns, the natural inflow and outflow of cash during billing cycles, natural variability in demand-based revenue streams (e.g., volumetric charges), and – particularly in periods of economic distress – changes or trends in age of receivables.
 - ✓ **Capital System Replacement Reserve (Fund 653)** should typically be equal to a minimum of 3% of net depreciable capital assets, which equates to a 33-year replacement cycle for capital assets. This target serves simply as a starting point for addressing long-term capital system replacement needs.
 - ✓ **Rate Stabilization Fund (Fund 652)** has a target ending balance of 20% of estimated rate revenue, as set by current City policy. This reserve is to further promote financial stability in the event of short-term reductions in rate revenues.

No debt reserve is recommended in this study, due to the fact that the 2014 Water Refunding & CIP Revenue Bonds do not require funds to be held in reserve. If at some point the City issues additional debt, this policy should be revised to reflect the requirements at that time.

Multiple financial plan alternatives were evaluated; the one ultimately selected by the City Council at the December 2, 2015 meeting is presented in this report. This financial plan assumes the City will implement the previously approved and adopted 6.25% water rate increase on January 1, 2016, and an additional 9% increase on April 1, 2016. This report provides an overview of the financial plan and resulting rates, and the Technical Appendix provides the details of the analysis.

Figure 2 summarizes the sources and uses of funds, net revenue requirements, and the recommended annual percent increases in total rate revenue for the next five years. As this figure shows, if the City implements the recommended increases, the water utility will run a deficit in FY 2015/16, a significantly smaller deficit in FY 2016/17, and surpluses in subsequent years. These surpluses are used to build up reserves, with the intent of meeting target reserve-fund balances by the end of the five-year period under consideration.

Figure 2. Summary of Water Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Sources of Water Funds					
Rate Revenue Under Prevailing Rates	\$ 7,329,555	\$ 7,476,146	\$ 8,703,075	\$ 8,877,136	\$ 9,054,679
Non-Rate Revenues	1,111,704	939,388	923,229	948,840	962,224
Interest Earnings	47,138	3,182	3,451	6,223	16,070
Total Sources of Funds	\$ 8,488,396	\$ 8,418,715	\$ 9,629,755	\$ 9,832,199	\$10,032,973
Uses of Water Funds					
Operating Expenses	\$ 8,924,651	\$ 9,051,571	\$ 9,709,848	\$ 10,034,316	\$ 10,339,632
Debt Service	939,538	945,549	944,774	943,336	944,184
Rate-Funded Capital Expenses	-	-	419,639	1,109,361	1,148,410
Total Use of Funds	\$ 9,864,189	\$ 9,997,120	\$ 11,074,261	\$ 12,087,013	\$ 12,432,227
Surplus (Deficiency) before Rate Increase	\$ (1,375,793)	\$ (1,578,405)	\$ (1,444,506)	\$ (2,254,814)	\$ (2,399,254)
Additional Revenue from Rate Increases	404,271	1,496,029	2,498,782	3,377,134	4,350,880
Surplus (Deficiency) after Rate Increase	\$ (971,522)	\$ (82,376)	\$ 1,054,276	\$ 1,122,320	\$ 1,951,627
Projected Annual Rate Increase¹	9.00%	7.25%	7.25%	7.25%	7.25%
Cumulative Rate Increases²	15.81%	24.21%	33.21%	42.87%	53.23%
Net Revenue Requirement³	\$ 8,705,347	\$ 9,054,551	\$ 10,147,581	\$ 11,131,951	\$ 11,453,933

1. FY 2015/16 increase is effective on April 1, 2016. All subsequent rate increases are effective on January 1st of each year.

2. The cumulative increase of 15.81% in FY 2015/16 is a result of applying the previously approved and adopted 6.25% increase that will be effective on 1/1/2016 and the 9% increase that will be adopted on 4/1/2016 as part of this rate setting process.

3. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from water rates.

Figure 3 summarizes the projected reserve fund balances and reserve targets for the next five years, and indicates that the water utility will not meet overall target reserve fund levels until FY 2019/20. Summaries of the water utility's proposed 5-year financial plan are included in Appendix A of this report – Water Rate Study Summary Tables. These tables include revenue requirements, reserve funds, revenue sources and proposed rate increases for the 5-year period.

Figure 3. Summary of Water Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Water Operations Fund (650)	\$ 1,272,626	\$ 690,250	\$ 1,244,526	\$ 2,142,638	\$ 2,540,000
<i>Recommended Minimum Target</i>	<i>2,231,000</i>	<i>2,263,000</i>	<i>2,427,000</i>	<i>2,509,000</i>	<i>2,585,000</i>
Water System Replacement Fund (653)	\$ -	\$ -	\$ -	\$ -	\$ 1,532,072
<i>Recommended Minimum Target</i>	<i>1,407,700</i>	<i>1,399,400</i>	<i>1,426,500</i>	<i>1,437,600</i>	<i>1,436,900</i>
Rate Stabilization Fund (652)	\$ 536,968	\$ 1,038,310	\$ 1,543,502	\$ 1,775,427	\$ 1,810,936
<i>Recommended Minimum Target</i>	<i>1,465,911</i>	<i>1,495,229</i>	<i>1,740,615</i>	<i>1,775,427</i>	<i>1,810,936</i>
Total Ending Balance	\$ 1,809,594	\$ 1,728,560	\$ 2,788,028	\$ 3,918,065	\$ 5,883,008
<i>Total Recommended Minimum Target</i>	<i>\$ 5,104,611</i>	<i>\$ 5,157,629</i>	<i>\$ 5,594,115</i>	<i>\$ 5,722,027</i>	<i>\$ 5,832,836</i>

C. CHARACTERISTICS OF WATER CUSTOMERS BY CLASS

The amount of consumption, the peaking factors, and the number of meters by customer class are all used in allocating costs as a part of the cost-of-service analysis. The City's most recent consumption data is summarized in **Figure 4**, peaking factors by customer class are summarized in **Figure 5**, and **Figure 6** compares the total number of meters by customer class.

Figure 4. Water Consumption by Customer Class

Development of the BASE CAPACITY Allocation Factor				
Customer Class	FY 2014/15 Volume (hcf) ¹	% Adjustment for Conservation ²	Estimated Volume Adjusted for Conservation	Percent of Total Volume
Residential SF- Inside	1,551,464	20%	1,241,172	57.2%
Residential SF- Outside	49,920	20%	39,936	1.8%
Residential - Multi-Family - Inside	308,735	20%	246,988	11.4%
Commercial - Inside	801,354	20%	641,084	29.6%
Commercial - Outside	68	20%	54	0.0%
Subtotal	2,711,541	--	2,169,235	100.0%
Fire	45	0%	-	0.0%
Grand Total	2,711,586	20%	2,169,235	100.0%

1. Consumption data source: Billed Consumption Report by Month spreadsheets.

2. Additional conservation expected from FY 2014/15. Based on a 38% conservation of CY 2013 consumption (3.5 mil hcf), per the State's August 27, 2015 water supplier report. Source of 2013 consumption data: Item10_Monthly Sales By Class 2013_2014_2015.xlsx.

Figure 5. Peaking Factors by Customer Class

Development of the CAPACITY (MAX MONTH) Allocation Factors				
Customer Class	Average Monthly Use (hcf)	Peak Monthly Use (hcf) ¹	Peak Month Factor	Max Month Capacity Factor
Residential SF- Inside	129,289	234,405	1.81	58.0%
Residential SF- Outside	4,160	6,690	1.61	1.7%
Residential - Multi-Family - Inside	25,728	41,773	1.62	10.3%
Commercial - Inside	66,780	121,307	1.82	30.0%
Commercial - Outside	6	16	2.82	0.0%
Subtotal	225,962	404,191	1.79	100.0%
Fire	4	21	5.60	0.0%
Grand Total	225,966	404,212	1.79	100.0%

1. Based on peak monthly data (peak day data not available).

Figure 6. Number of Meters by Customer Class

Development of the Customer Allocation Factor		
Customer Class	Number of Meters ¹	Percent of Total
Residential SF- Inside	9,370	69.3%
Residential SF- Outside	312	2.3%
Residential - Multi-Family - Inside	1,996	14.8%
Commercial - Inside	1,573	11.6%
Commercial - Outside	3	0.0%
Subtotal	13,254	98.1%
Fire	262	1.9%
Grand Total	13,516	100.0%

1. Number of meters is from the Billed Consumption Report by Month spreadsheets for June 2015.

D. COST OF SERVICE ANALYSIS

Once the revenue requirements for the water utility are determined as described in Section 2-B of this report, the cost of service analysis distributes those revenue requirements to each of the customer classes. The cost of service analysis consists of two major components: (1) the functionalization and classification of expenses, and (2) the allocation of costs to customer classes. This process is described as follows:

Functionalization, Classification and Allocations

Most costs are not typically allocated 100% to fixed or variable categories and, therefore, are allocated to multiple functions of water service. The classification (i.e., functionalization) of costs provides the basis for allocating the classified costs to the following cost-causation components:

- **Commodity** related costs are those costs associated with the total consumption of water over a specified period of time (e.g., annual).
- **Capacity** related costs are those costs associated the maximum demand required at one point in time or the maximum size of facilities required to meet this demand.
- **Customer** related costs are costs associated with having a customer on the water system, such as meter reading, postage and billing.
- **Fire Protection** costs are those costs associated with providing sufficient capacity in the system for fire meters and other operations and maintenance costs of providing water to properties for private fire service protection.
- **Zonal** related costs are costs that are allocated to the zonal elevation surcharges that are discussed in Section 4 of this report.

Once costs have been organized in the City's functional budget categories, they are allocated to these cost causation components that are used as the basis for establishing new water rates and translate to fixed and variable charges. The tables in Appendix A, on pages 20-26 show how the City's expenses were classified and allocated to these cost causation components and then into fixed and variable costs.

Fixed costs generally consist of costs that a utility incurs to serve customers irrespective of the amount of water they use.⁷ These include (1) the infrastructure (capacity-related facilities) required to provide service to customers, (2) costs associated with the peaking requirements, or maximum demand which affects the maximum size of water supply, treatment and delivery system, and (3) administrative and billing costs associated with meter reading, postage and billing.

Variable costs are those that change as the volume of water produced and delivered changes. These commonly include the costs of chemicals used in the treatment process, energy related to pumping for transmission and distribution, and source of supply.

Ideally, utilities should recover all of their fixed costs from fixed charges and all of their variable costs from volumetric charges; when this is the case, fluctuations in water sales revenues would be directly offset by reductions or increases in variable expenses. Because of this, this rate design provides greater revenue stability. However, other factors are often considered when designing water rates such as community values, water conservation goals, ease of understanding, and ease of administration.⁸

NBS allocated the functionalization of costs into categories that can be more generally grouped into the fixed and variable costs discussed above. This analysis resulted in a cost distribution that is 70% fixed

^{7 7} *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, American Water Works Association, Sixth Edition, see pp. 137-139.*

⁸ *Ibid, pp. 5 and 96.*

and 30% variable (volumetric)⁹. However, after reviewing these results the City decided to use a cost allocation that collects 50% from fixed charges and 50% of the rate revenue from volumetric rates. Proposed new rates were, therefore, based on this 50/50 allocation.

Collecting 50% from fixed charges and 50% of the rate revenue from volumetric rates impacted the individual percentage cost allocations. **Figure 7** summarizes how costs are allocated to each cost component and used to establish new water rates. As a result, 48% of revenue will be collected from commodity rates, 45% will be collected from fixed capacity-related charges, 4% from fixed customer-related charges, 1% will be collected from fire-protection fixed charges and 2% will be collected from zonal elevation surcharges. Zonal elevation surcharge are discussed in Section 4 of this report; however, the costs will be recovered 50% from fixed charges and 50% from variable charges¹⁰.

Figure 7. Allocated Net Revenue Requirements

Classification Components	Allocated Net Revenue Requirements (FY 2015/16) 50% Fixed / 50% Variable	
Commodity-Related Costs	\$ 4,063,500	48%
Capacity-Related Costs	\$ 3,779,055	45%
Customer-Related Costs	\$ 381,841	4%
Fire Protection-Related Costs	\$ 83,375	1%
Subtotal: Revenue Requirement	\$ 8,307,770	98%
Zonal Related Costs ¹	\$ 180,770	2%
Total: Net Revenue Requirement	\$ 8,488,540	100%

1. Zonal Related Costs are recovered via the zonal charge and are not included in the general water rate revenue calculation.

Costs Allocated to Customer Classes

Customer classes are typically determined by grouping customers with similar demand characteristics into categories that reflect the cost differentials to serve each type of customer. While customer classes are most often identified as single-family, multi-family, commercial, etc., the City currently does not distinguish rates by customer class but instead applies the same fixed charges to all customers, although these fixed charges vary by meter size. The only exception is that fire protection meters are subject to a different fixed charge by meter size that is less than the standard water meter charge.

In the new rate structure, rates will be further distinguished between residential and non-residential customer classes. These two groups of customers will have different fixed charges by meter size that reflects the different costs incurred to serve residential vs. non-residential classes of customers. **Figure 8** shows how costs are distributed to each customer class.

⁹ This analysis is presented in Appendix A, pages 20-26.

¹⁰ This was the direction provided by City staff; these zonal surcharges were also calculated by City staff.

Figure 8. Distribution of Costs to Each Customer Class

Customer Class	Cost Classification Components				Cost of Service Net Revenue Reqs	% of COS Net Revenue Reqs
	Commodity ¹	Capacity ²	Customer ³	Fire Protection ⁴		
Residential (Single & Multi-family)	\$ 2,862,494	\$ 2,644,724	\$ 329,915	\$ -	\$ 5,837,133	70%
Non-Residential (Commercial)	\$ 1,201,007	\$ 1,134,331	\$ 44,524	\$ -	\$ 2,379,861	29%
Fire	\$ -	\$ -	\$ 7,402	\$ 83,375	\$ 90,777	1%
Grand Total	\$ 4,063,500	\$ 3,779,055	\$ 381,841	\$ 83,375	\$ 8,307,770	100%

1. Commodity-related costs are allocated based on the % of water consumed by each customer class.

2. Capacity-related costs are allocated based on the % of peak-month use by customer class.

3. Customer-related costs are allocated based on the % of customers within each customer class.

4. A direct allocation is made in the functionalization and classification analysis to fire protection, to cover this customer class' portion of system-wide costs.

Commodity related costs are distributed to each customer class based on the percentage of water consumed (previously shown in Figure 4). Capacity related costs are distributed to each customer class based on the peaking factors (previously shown in Figure 5). Customer related costs are distributed to each customer class based on the number of customers in each customer class (previously shown in Figure 6). A direct allocation is made in the functionalization and classification process to commercial fire which reflects their share of system-wide costs.

E. CURRENT VS. PROPOSED WATER RATE STRUCTURES

The process of evaluating the water rate structure provides the opportunity to incorporate a number of rate-design objectives and policies, including revenue stability, equity among customer classes, and water conservation. One of the City's main objectives in this study was to develop a rate structure that would provide the utility with more revenue stability than the current rate structure does. In the City's existing water rates, only 19% of revenue is collected from fixed charges and 81% is collected from variable charges.

Based on the results of the cost-of-service analysis conducted in this study, costs are approximately 70% fixed and 30% variable. NBS developed a number of alternatives for the City to consider with respect to the amount collected from fixed vs. variable charges, and the City ultimately chose to move forward with rates that collect 50% of revenue from fixed charges and 50% of revenue from variable charges.

Fixed Charges

Meter sizes have different fixed charges based on the capacity requirements of each size meter connected to the system. This is because larger meters have the potential to use more of the system's capacity, or said differently, they have higher peaking factors compared to smaller meters. The potential capacity demanded (peaking) is proportional to the maximum hydraulic flow through each meter size as established by the AWWA hydraulic capacity ratios¹¹. As an example, a 2-inch meter has a greater capacity, or potential peak demand than a 3/4-inch meter; therefore the fixed charge for a 2-inch meter is larger than a 3/4-inch meter based on their proportionate capacity requirements¹². A "hydraulic capacity factor" is calculated by dividing the maximum capacity or flow of large meters by the capacity of the base meter size, which is typically the most common residential meter size (in this case a 1-inch meter).

¹¹ See: American Water Works Association, *Principles of Water Rates, Fees and Charges: Manual of Water Supply Practices M1*, 326, (6th ed. 2012) and American Water Works Association, *Water Meters – Selection, Installation, Testing and Maintenance M6*, 65 (5th ed. 2012).

¹² This is reflected in the fixed charge calculations by using the AWWA hydraulic capacity factors to represent the maximum volume each meter size is capable of delivering.

The actual number of meters by size is multiplied by the corresponding capacity ratios to calculate the total number of equivalent meters. The number of equivalent meters is used as a proxy for the potential demand that each customer can place on the water system (which dictates the sizing of the system's maximum capacity). A significant portion of a water system's peak capacity, and in turn, the utility's fixed operating and capital costs, are related to meeting system capacity requirements.

Currently, the City charges all customer classes a fixed monthly charge based on meter size, regardless of customer class, with the exception of fire meters. NBS recommends changing the fixed rate structure in order to differentiate between Residential (single and multi-family customers) and Non-Residential customer classes. The rates presented in this report, modify the fixed rate structure accordingly.

Fire service customers will still be subject to a different set of fixed charges than the other customer classes. Fire service customers differ from other water service customers because their service is more of a standby nature, where a readiness-to-serve charge is appropriate. Except in the event of a fire, these users are not intended to use water on a regular basis (as shown previously in Figure 4). However, the City still needs to provide sufficient capacity for fire meters and recover other operations and maintenance costs of providing water to such properties for private fire service protection. Based on the cost of service analysis and the standby nature of fire meters, the overall cost to serve these users is less than that of a standard service; therefore, the fixed charges are less.

Figures 9, 10 and 11 show how fixed meter charges were calculated for each customer class. The customer component of the rate is \$2.35 per meter, and does not vary by meter size because it represents costs to the utility for having connections to the water system. Capacity costs vary by meter size and are based on their hydraulic capacity.

Figure 9. Calculation of FY 2015/16 Residential Fixed Meter Charges

Residential Meter Size	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Fixed Meter Charge		Total Monthly Fixed Meter Charge	Estimated Revenue from Fixed Charges
				Customer Component	Capacity Component		
5/8 inch	1.00	1,454	1,454	\$2.35	\$18.27	\$20.62	\$ 359,766
3/4 inch	1.00	1,599	1,599	\$2.35	\$18.27	\$20.62	\$ 395,644
1 inch	1.00	8,461	8,461	\$2.35	\$18.27	\$20.62	\$ 2,093,521
1.5 inch	2.00	98	196	\$2.35	\$36.53	\$38.88	\$ 45,728
2 inch	3.20	52	166	\$2.35	\$58.45	\$60.80	\$ 37,941
3 inch	6.40	-	-	\$2.35	\$116.90	\$119.25	\$ -
4 inch	10.00	9	90	\$2.35	\$182.65	\$185.00	\$ 19,981
6 inch	20.00	5	100	\$2.35	\$365.30	\$367.66	\$ 22,059
8 inch	32.00	-	-	\$2.35	\$584.48	\$586.84	\$ -
10 inch	84.00	-	-	\$2.35	\$1,534.27	\$1,536.62	\$ -
Total (Residential Customers)		11,678	12,066				\$ 2,974,639

Figure 10. Calculation of FY 2015/16 Non-Residential Fixed Meter Charges

Non-Residential Meter Size	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Fixed Meter Charge		Total Monthly Fixed Meter Charge	Estimated Revenue from Fixed Charges
				Customer Component	Capacity Component		
5/8 inch	1.00	61	61	\$2.35	\$28.92	\$31.28	\$ 22,894
3/4 inch	1.00	99	99	\$2.35	\$28.92	\$31.28	\$ 37,156
1 inch	1.00	568	568	\$2.35	\$28.92	\$31.28	\$ 213,177
1.5 inch	2.00	363	726	\$2.35	\$57.84	\$60.20	\$ 262,221
2 inch	3.20	441	1,411	\$2.35	\$92.55	\$94.90	\$ 502,230
3 inch	6.40	13	83	\$2.35	\$185.10	\$187.45	\$ 29,243
4 inch	10.00	30	300	\$2.35	\$289.22	\$291.57	\$ 104,966
6 inch	20.00	1	20	\$2.35	\$578.43	\$580.79	\$ 6,969
8 inch	32.00	-	-	\$2.35	\$925.49	\$927.85	\$ -
10 inch	84.00	-	-	\$2.35	\$2,429.42	\$2,431.77	\$ -
Total (Non-Residential Customers)		1,576	3,268				\$ 1,178,854

Figure 11. Calculation of FY 2015/16 Private Fire Protection Fixed Meter Charges

Fire Service Meter Size	Hydraulic Capacity Factor	Number of Meters	Total Equivalent Meters	Fixed Meter Charge		Total Monthly Fixed Meter Charge	Estimated Revenue from Fixed Charges
				Customer Component	Capacity Component		
3 inch	7.00	-	-	\$2.35	\$5.33	\$7.69	\$ -
4 inch	14.00	64	896	\$2.35	\$10.67	\$13.02	\$ 9,999
6 inch	32.00	126	4,032	\$2.35	\$24.38	\$26.73	\$ 40,420
8 inch	56.00	67	3,752	\$2.35	\$42.66	\$45.02	\$ 36,194
10 inch	88.00	5	440	\$2.35	\$67.04	\$69.40	\$ 4,164
Total (Fire Service Customers)		262	9,120				\$ 90,777

Volumetric Rates

Currently, the City charges residential customers a three-tiered commodity rate and non-residential customers pay a uniform commodity rate for all water consumed (commodity or volumetric rates are charged per unit of water, or hundred cubic feet (hcf)). NBS recommends using a uniform, or single-tier, volumetric rate for residential customers rather than a multi-tiered rate design. The use of a uniform volumetric rate better conforms to the requirements of Proposition 218, particularly the more stringent cost-basis required by the recent San Juan Capistrano decision, which is summarized as follows:

“... the City (of San Juan Capistrano) failed to demonstrate that the tiers correspond to the actual cost of providing service at a given level of usage. The court rejected reliance on Article X, Section 2 to promote water conservation as the sole basis for establishing tiers, holding the city had to show that the various usage tiers corresponded with its actual costs of delivering water in those increments.” And that “...rates were not proportional to the cost of service because the City did not calculate the incremental cost of providing water at the level of use represented by each tier. Specifically, the court criticized the City for not correlating its rates within each tier to the prices of water used within each tier.”¹³

In addition, because of the significant differences in typical water use of commercial customers (e.g., laundromat vs. restaurants vs. office space), uniform commodity charges are a commonly used rate structure for these types of customers, and is the primary reason why tiered rates typically aren't used for commercial customers. **Figure 12** shows water consumption, commodity related costs, and the uniform volumetric rate that will apply to all customer classes.

Figure 12. FY 2015/16 Uniform Volumetric Rates

Customer Classes	Number of Meters ¹	Water Consumption (hcf/yr) ²	Commodity Related Costs ³	Uniform Commodity Rates (\$/hcf)
Residential	11,678	1,528,097	\$ 2,862,494	\$1.873
Non-Residential	1,576	641,138	\$ 1,201,007	\$1.873
Subtotal	13,254	2,169,235	\$ 4,063,500	
Fire	262	0	\$ -	\$1.873
Grand Total	13,516	2,169,235	\$ 4,063,500	

1. Number of meters by size and class is per the City of Morgan Hill's utility billing data as of July 2015 in the Billed Consumption Report by Month spreadsheets.

2. Water consumption is 20% less than FY2014/15 consumption by customer class to account for additional conservation.

3. Refer to Figure 8 for determination of costs by customer class.

¹³ Source: “Legal Alerts – California Court of Appeal Holds City's Tiered Water Rate Structure Violates Proposition 218” by Kelly Salt, Best Best & Krieger, April 21, 2015.

Current and Proposed Water Rates

Figure 13 provides a comparison of the current and proposed rates for Fiscal Year 2015/16 through 2019/20. **Figures 14** and **15** compare monthly bills for single-family and multi-family residential customers under current and proposed rates at varying levels of water consumption. **Figure 16** shows a comparison of monthly bills for commercial customers under current and proposed rates at varying levels of water consumption. **Figure 17** shows a regional bill comparison for the average single-family residential customer in Morgan Hill.

In addition to the fixed monthly and uniform commodity rates, the City will be implementing a pass-through provision for groundwater production charges. At this time, increases to this expense are accounted for with normal inflation factored at approximately 3% annually. Should groundwater production costs increase more than the annual rate of inflation, the City will modify rates to offset the cost(s) accordingly. While this rate is discussed in conjunction with the rate study, it would be implemented as needed in the future.

Figure 13. Current and Proposed Water Rates for FY 2015/16 through 2019/20

Water Rate Schedule	Current Rates	Proposed Water Rates 50% Fixed / 50% Variable				
		FY 2015/16 ¹	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Projected Increase in Rate Revenue per Financial Plan:		9.00%	7.25%	7.25%	7.25%	7.25%
Fixed Service Charges	Monthly Rates					
<u>Single- and Multi-Family Residential:</u>						
5/8 inch	\$8.41	\$20.62	\$22.11	\$27.07	\$29.03	\$31.14
3/4 inch	\$8.41	\$20.62	\$22.11	\$27.07	\$29.03	\$31.14
1 inch	\$8.41	\$20.62	\$22.11	\$27.07	\$29.03	\$31.14
1.5 inch	\$13.99	\$38.88	\$41.70	\$51.05	\$54.75	\$58.72
2 inch	\$22.48	\$60.80	\$65.21	\$79.82	\$85.61	\$91.81
3 inch	\$44.90	\$119.25	\$127.90	\$156.55	\$167.90	\$180.07
4 inch	\$72.69	\$185.00	\$198.42	\$242.87	\$260.48	\$279.36
6 inch	\$111.65	\$367.66	\$394.31	\$482.65	\$517.64	\$555.17
<u>Non-Residential:</u>						
5/8 inch	\$8.41	\$31.28	\$33.54	\$41.06	\$44.03	\$47.23
3/4 inch	\$8.41	\$31.28	\$33.54	\$41.06	\$44.03	\$47.23
1 inch	\$8.41	\$31.28	\$33.54	\$41.06	\$44.03	\$47.23
1.5 inch	\$13.99	\$60.20	\$64.56	\$79.03	\$84.76	\$90.90
2 inch	\$22.48	\$94.90	\$101.78	\$124.59	\$133.62	\$143.31
3 inch	\$44.90	\$187.45	\$201.04	\$246.08	\$263.92	\$283.06
4 inch	\$72.69	\$291.57	\$312.71	\$382.77	\$410.52	\$440.28
6 inch	\$111.65	\$580.79	\$622.89	\$762.44	\$817.72	\$877.00
<u>Fire Service:</u>						
3 inch	--	\$7.69	\$8.24	\$10.09	\$10.82	\$11.61
4 inch	\$16.58	\$13.02	\$13.96	\$17.09	\$18.33	\$19.66
6 inch	\$24.86	\$26.73	\$28.67	\$35.09	\$37.64	\$40.37
8 inch	\$33.15	\$45.02	\$48.28	\$59.10	\$63.38	\$67.98
10 inch	\$41.43	\$69.40	\$74.43	\$91.10	\$97.71	\$104.79
Volumetric Charges						
<u>Single-Family Res / Multi-Family Res per DU:</u>						
Tier 1 (1-10 hcf / 1-8 hcf)	\$1.63	--	--	--	--	--
Tier 2 (11-30 hcf / 9-16 hcf)	\$3.27	--	--	--	--	--
Tier 3 (31+ hcf / 17+)	\$4.90	--	--	--	--	--
Uniform Rate, Non-Residential Customers	\$2.67	--	--	--	--	--
Uniform Rate, All Customers	--	\$1.87	\$2.01	\$2.24	\$2.40	\$2.57

1. The Fiscal Year 2015/16 rate increase will be effective April 1, 2016, and all subsequent rate increases will be effective on January 1st of each year. In this rate alternatives, the previously approved and adopted 6.25% increase planned for January 1, 2016 will be implemented.

The City's current policy is to charge 5/8" – 1" meters the same rate; this practice has been maintained in the proposed rates shown in Figure 13, per direction from City Staff. Various alternatives to this structure were evaluated in the study; however, 1" meters are the minimum meter size that will be installed as customers connect to the system and as meters are replaced, the 5/8" and 3/4" meters are replaced with 1" meters. Therefore, NBS believes this approach is reasonable.

Figure 14. Comparison of Monthly Water Bills for Single-Family Residential Customers

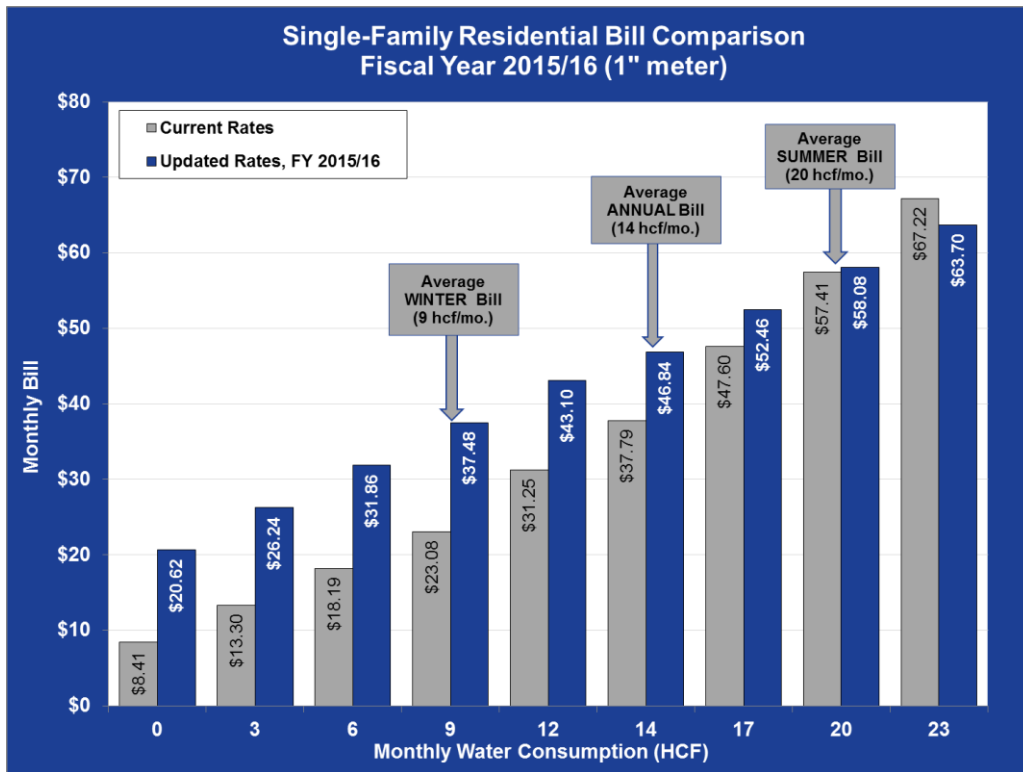


Figure 15. Comparison of Monthly Water Bills for Multi-Family Residential Customers

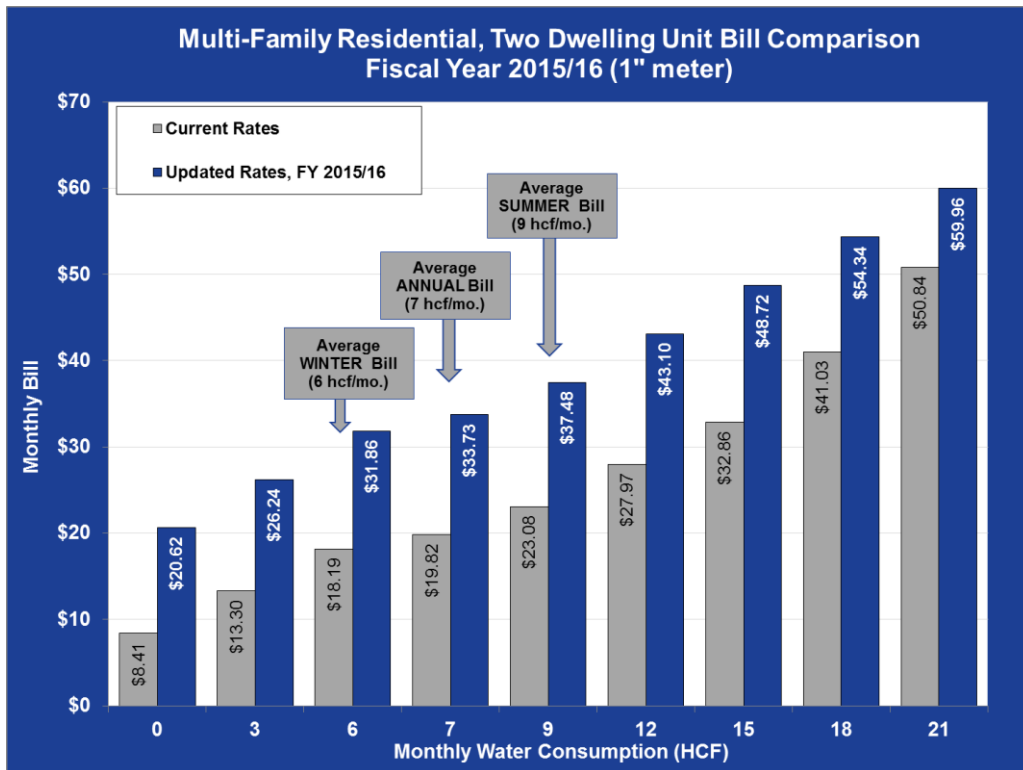


Figure 16. Comparison of Monthly Water Bills for Commercial Customers

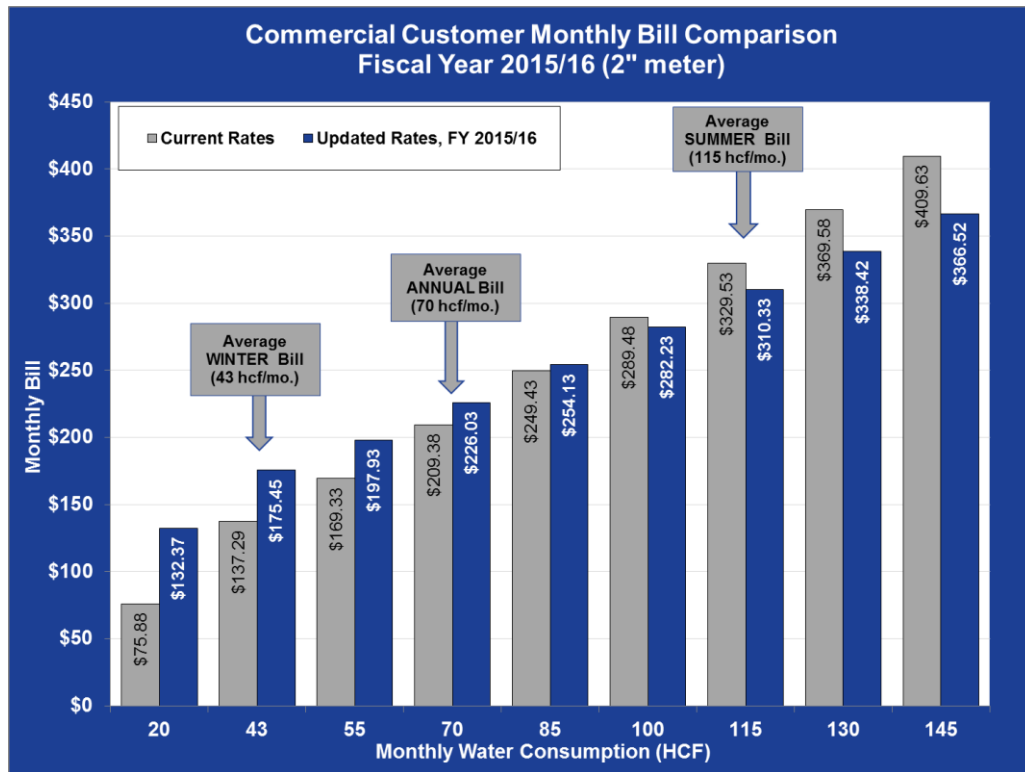
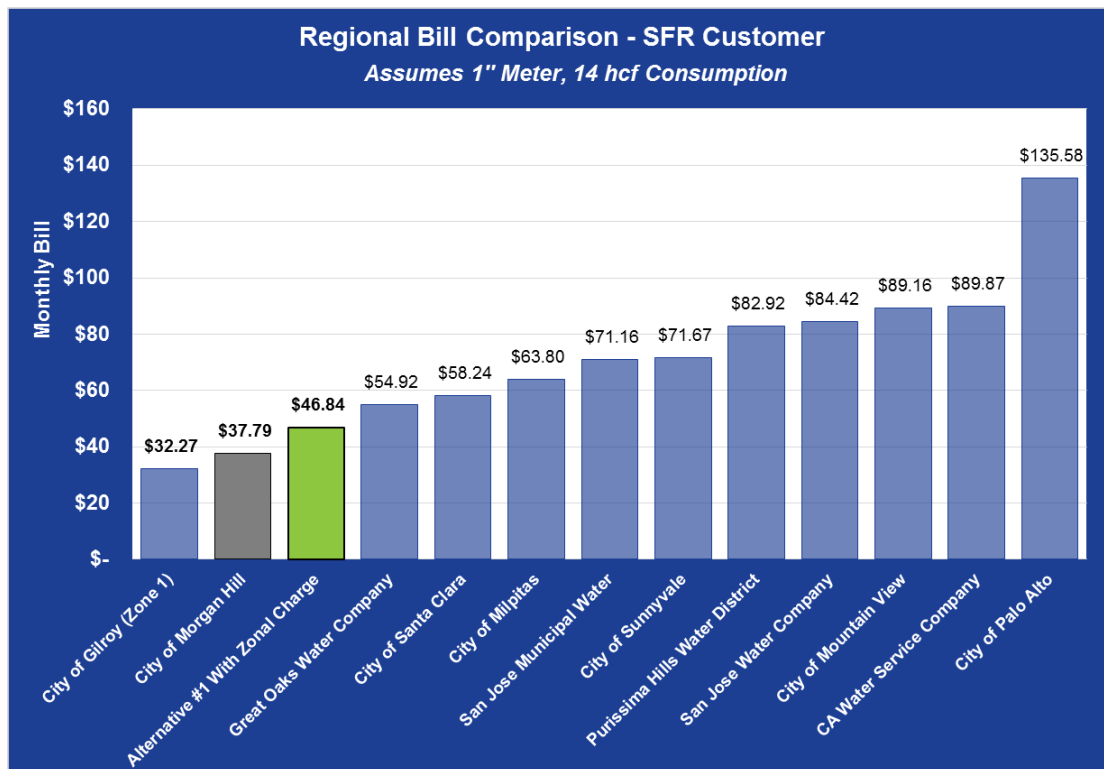


Figure 17. Regional Water Bill Comparison for Average Single-Family Residential Customer



SECTION 3. WASTEWATER RATE STUDY

A. KEY WASTEWATER RATE STUDY ISSUES

The specific objectives addressed in the wastewater rate analysis included:

- Generating additional revenue needed to meet projected funding requirements.
- Continuing the City's existing rate structure which consists of a fixed monthly charge based on meter size, a volumetric charge for commercial customers that relies on monthly water use, and the volumetric charge for single and multi-family residential customer that is applied to average winter water use.

During the course of this study, NBS developed several wastewater rate alternatives using industry standards and cost-of-service principles for the City to consider. These included re-structuring fixed charges to be based on customer class rather than meter size. We also evaluated re-structuring the commercial volumetric charges by collapsing a few categories and re-assigning some customers into different classes. The rate alternatives presented in this report reflect input from City staff, the most significant of which was the City's priority of largely maintaining the existing rate structure (with the exception of using average winter water use for residential customers) and applying across-the-board increases to the existing rate schedule.

The proposed rates for the next five years consists of a fixed monthly charge per account based on meter size, plus a variable rate based on water consumption that differs by customer class. The variable rate is billed based on monthly water consumption for commercial customers, and average winter water consumption for residential customers.

B. WASTEWATER UTILITY REVENUE REQUIREMENTS

It is important for municipal utilities to maintain reasonable reserves in order to handle emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. Rate increases are governed by the need to meet operating and capital costs, maintain and build reserve funds. The current state of the City's wastewater utility is as follows:

- **Meeting Net Revenue Requirements:** The City's wastewater utility is in a strong financial position, meaning rates are generally sufficient to meet projected net revenue requirements (i.e., total annual expenses plus debt service and rate-funded capital costs, less non-rate revenues) over the next five years. Net revenue requirements are projected to increase from approximately \$7.8 million to \$10.4 million in Fiscal Years 2015/16 through 2019/20. Increases to rate revenue of 2% per year are recommended in FY 2016/17 through 2019/20, in order to continue meeting financial obligations in the long run and ensure that the wastewater utility will meet the minimum debt coverage requirement of 1.25, as required for the 2015 Wastewater Revenue Bonds.
- **Building and Maintaining Reserve Funds:** The City should maintain sufficient reserves for the Utility. NBS recommends that the City adopt and maintain reserve fund targets similar to those of the water utility, including:
 - ✓ **Operating Reserve (Fund 640)** target is set to 90 days of the Utility's budgeted annual operating expenses, which is equal to a three-month (or 25%) cash cushion for normal operations. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures. Fluctuations might be caused by weather patterns, the natural inflow and outflow of cash during billing cycles, natural variability in demand-based revenue streams (e.g., variable charges), and – particularly in periods of economic distress – changes or trends in age of receivables.

- ✓ **Capital System Replacement Reserve (Fund 643)** should typically be equal to a minimum of 3% of net depreciable capital assets, which equates to a 33-year replacement cycle for capital assets. This target serves simply as a starting point for addressing long-term capital system replacement needs.
- ✓ **Rate Stabilization Fund (Fund 642)** has a target ending balance of 20% of estimated rate revenue, as set by current City policy. This reserve is to further promote financial stability in the event of short-term reductions in rate revenues.

No debt reserve is recommended in this study, due to the fact that the 2015 Sewer Revenue Bonds do not require funds to be held in reserve. If at some point the City issues additional debt, this policy should be revised to reflect the requirements at that time.

Multiple financial plan alternatives were prepared throughout the study at the request of City Staff and the Council. Only the alternative recommended for implementation is presented in this report, which consists of a 2% increase in rate revenue annually for FY 2016/17 through 2019/20. The first increase will be effective on January 1, 2017 and then each January 1st thereafter¹⁴.

Figure 18 summarizes the sources and uses of funds, including net revenue requirements, and the recommended annual percent increases in total rate revenue for the next five years.

Figure 18. Summary of Wastewater Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	City's Budget Projections				
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Sources of Wastewater Funds					
Rate Revenue Under Prevailing Rates	\$ 9,921,864	\$ 10,090,078	\$ 10,291,880	\$ 10,497,718	\$ 10,707,672
Other Operating Revenue	175,843	179,543	183,354	187,280	191,323
Interest Earnings	41,394	15,959	34,087	53,763	50,628
Total Sources of Funds	\$ 10,139,100	\$ 10,285,581	\$ 10,509,320	\$ 10,738,761	\$ 10,949,623
Uses of Wastewater Funds					
Operating Expenses	\$ 7,566,286	\$ 7,861,132	\$ 8,180,753	\$ 8,517,079	\$ 8,862,574
Debt Service	502,299	1,841,791	1,845,120	1,844,478	1,844,003
Rate-Funded Capital Expenses	-	-	-	-	-
Total Use of Funds	\$ 8,068,585	\$ 9,702,923	\$ 10,025,873	\$ 10,361,557	\$ 10,706,577
Surplus (Deficiency) before Rate Increase	\$ 2,070,516	\$ 582,658	\$ 483,447	\$ 377,203	\$ 243,046
Additional Revenue from Rate Increases	-	100,901	310,815	533,326	769,026
Surplus (Deficiency) after Rate Increase	\$ 2,070,516	\$ 683,559	\$ 794,262	\$ 910,530	\$ 1,012,072
Projected Annual Increase to Rate Revenue¹	0.00%	2.00%	2.00%	2.00%	2.00%
Cumulative Rate Increases	0.00%	2.00%	4.04%	6.12%	8.24%
Net Revenue Requirement²	\$ 7,851,348	\$ 9,507,421	\$ 9,808,433	\$ 10,120,514	\$ 10,464,626

1. Rate adjustments will be effective on January 1st of each year.

2. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from sewer rates.

¹⁴ This effectively implements the rate increase for only six months of each fiscal year, which impacts the amount of revenue collected from the rate increase each year.

Figure 19 summarizes the projected reserve fund balances and reserve targets, for the next five years. A summary of the wastewater utility's proposed 5-year financial plan is included in Appendix B – Wastewater Rate Study Summary Tables. These tables include revenue requirements, reserve funds, revenue sources and proposed rate increases for the 5-year period.

Figure 19. Summary of Wastewater Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Sewer Operations Fund (640)	\$ 1,892,000	\$ 1,965,000	\$ 2,045,000	\$ 2,129,000	\$ 2,216,000
<i>Recommended Minimum Target</i>	<i>1,892,000</i>	<i>1,965,000</i>	<i>2,045,000</i>	<i>2,129,000</i>	<i>2,216,000</i>
Sewer System Replacement Fund (643)	\$ 4,491,747	\$ 4,852,305	\$ 5,123,429	\$ 4,621,380	\$ 3,854,750
<i>Recommended Minimum Target</i>	<i>1,473,700</i>	<i>1,662,300</i>	<i>1,950,100</i>	<i>2,153,500</i>	<i>2,402,600</i>
Rate Stabilization Fund (652)	\$ 1,509,814	\$ 1,763,589	\$ 2,022,406	\$ 2,112,575	\$ 2,178,419
<i>Recommended Minimum Target</i>	<i>1,984,373</i>	<i>2,038,196</i>	<i>2,120,539</i>	<i>2,206,209</i>	<i>2,295,340</i>
Total Ending Balance	\$ 7,893,561	\$ 8,580,894	\$ 9,190,835	\$ 8,862,955	\$ 8,249,169
<i>Total Recommended Minimum Target</i>	<i>\$ 5,350,073</i>	<i>\$ 5,665,496</i>	<i>\$ 6,115,639</i>	<i>\$ 6,488,709</i>	<i>\$ 6,913,940</i>

C. CURRENT VS. PROPOSED WASTEWATER RATES

Similar to the rate design for the water rates, the wastewater rate design process provides an opportunity to evaluate several rate-design objectives and policies (revenue stability, equity among customer classes), and how changing the amount of rate revenue collected from fixed monthly vs. volumetric charges affects typical customer bills. As mentioned in Section 3A of this report, several of these alternatives were evaluated in this study; however the City has chosen to maintain the existing rate structure and simply increase existing rates by the percentage increase needed in overall rate revenue.

Single- and multi- family residential customers with meter sizes between 5/8-inch to 1-inch will pay a fixed monthly service charge, and a volumetric charge per hcf based on average winter water use. All other users will pay a fixed charge based on meter size and a volumetric rate based on actual monthly water consumption. There are six Commercial customer classifications that apply to volumetric rates (for all non-residential customers), that reflect the strength characteristics of each customer class.

Figure 20 shows current and proposed wastewater rates for FY 2015/16 through FY 2019/20. In identifying current rates, this study utilizes rates in effect as of January 1, 2015, which were approved through a previous rate study and Proposition 218 process. A rate increase of 3.5% that was previously scheduled for January 1, 2016 will not be implemented in this new financial plan. More detailed tables documenting the development of the proposed wastewater rates are documented in Appendix B.

Figure 21 compares the average monthly wastewater bills¹⁵ for residential customers under current and proposed rates; **Figure 22** compares commercial bills (Commercial 2 customer class) under current vs. proposed rates. **Figure 23** shows a regional bill comparison for the average single-family residential customer in Morgan Hill.

¹⁵ Residential customers are billed based average winter water use and their wastewater bill is fixed for the next 12 months.

Figure 20. Current vs. Proposed Wastewater Rates for FY 2015/16 through FY 2019/20

Sewer Rate Schedule	Current Rates	Proposed Rates with 2% Annual Increase				
		FY 2015/16 ¹	FY 2016/17 ²	FY 2017/18	FY 2018/19	FY 2019/20
		0.00%	2.00%	2.00%	2.00%	2.00%
Monthly Fixed Charges:						
Residential (5/8-1 inch meters)	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
All Other Customers:						
5/8 inch	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
3/4 inch	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
1 inch ³	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
1.5 inch	\$69.38	\$69.38	\$70.77	\$72.18	\$73.63	\$75.10
2 inch	\$110.47	\$110.47	\$112.68	\$114.93	\$117.23	\$119.58
3 inch	\$240.66	\$240.66	\$245.47	\$250.38	\$255.39	\$260.50
4 inch	\$432.27	\$432.27	\$440.92	\$449.73	\$458.73	\$467.90
6 inch	\$959.45	\$959.45	\$978.64	\$998.21	\$1,018.18	\$1,038.54
8 inch	\$1,482.18	\$1,482.18	\$1,511.82	\$1,542.06	\$1,572.90	\$1,604.36
10 inch	\$1,852.73	\$1,852.73	\$1,889.78	\$1,927.58	\$1,966.13	\$2,005.45
Volumetric Charges:						
Single-Family (Applied to <u>Avg. Winter</u> Water Use)	\$3.93	\$3.93	\$4.01	\$4.09	\$4.17	\$4.25
Multi-Family (Applied to <u>Avg. Winter</u> Water Use)	\$3.93	\$3.93	\$4.01	\$4.09	\$4.17	\$4.25
Commercial Charge (Applied to <u>Monthly</u> Water Use):						
Commercial 1	\$3.76	\$3.76	\$3.84	\$3.91	\$3.99	\$4.07
Commercial 2	\$4.40	\$4.40	\$4.49	\$4.58	\$4.67	\$4.76
Commercial 3	\$5.35	\$5.35	\$5.46	\$5.57	\$5.68	\$5.79
Commercial 4	\$6.07	\$6.07	\$6.19	\$6.32	\$6.44	\$6.57
Commercial 5	\$7.21	\$7.21	\$7.35	\$7.50	\$7.65	\$7.80
Commercial 6	\$12.03	\$12.03	\$12.27	\$12.52	\$12.77	\$13.02

1. A 3.5% rate increase effective January 1, 2016 was approved and adopted in a prior Proposition 218 process. Under this rate alternative, the City is not implementing these rates.

2. The first rate adjustment will be effective on January 1, 2017 and all subsequent increases will be effective on January 1st of each year thereafter.

3. The 1 inch commercial meter fixed charge is the set equal to the residential 1 inch meter charge.

Figure 21. Residential Wastewater Bill Comparison – Current vs. Proposed Rates

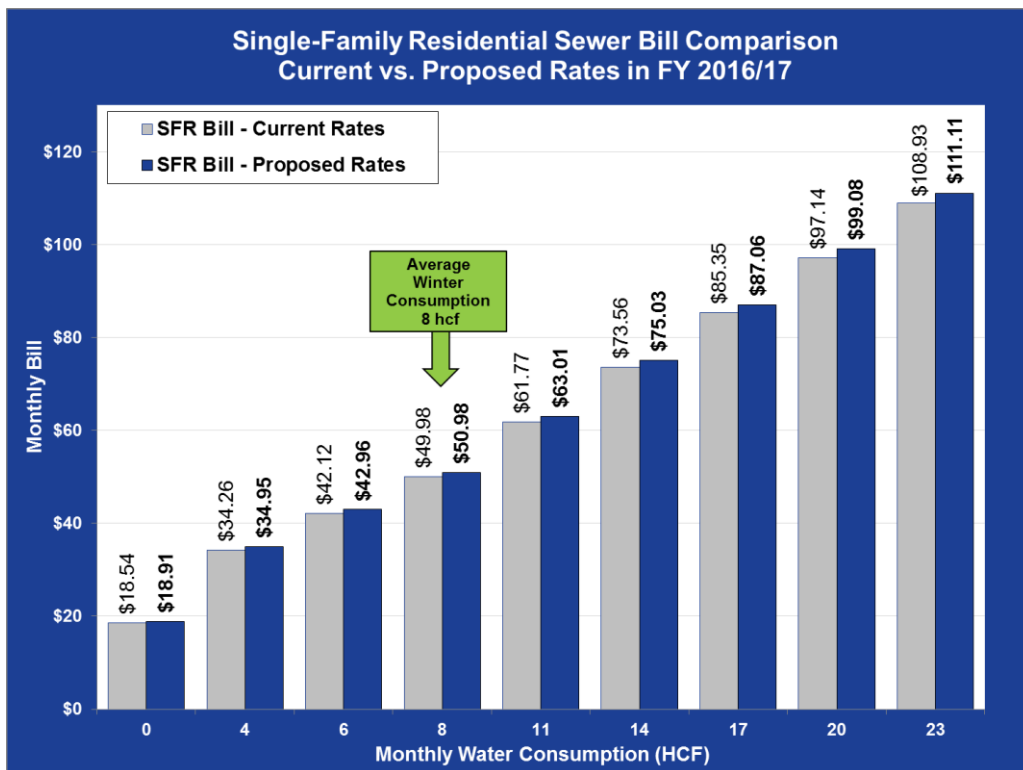


Figure 22. Commercial 2 Wastewater Bill Comparison – Current vs. Proposed Rates

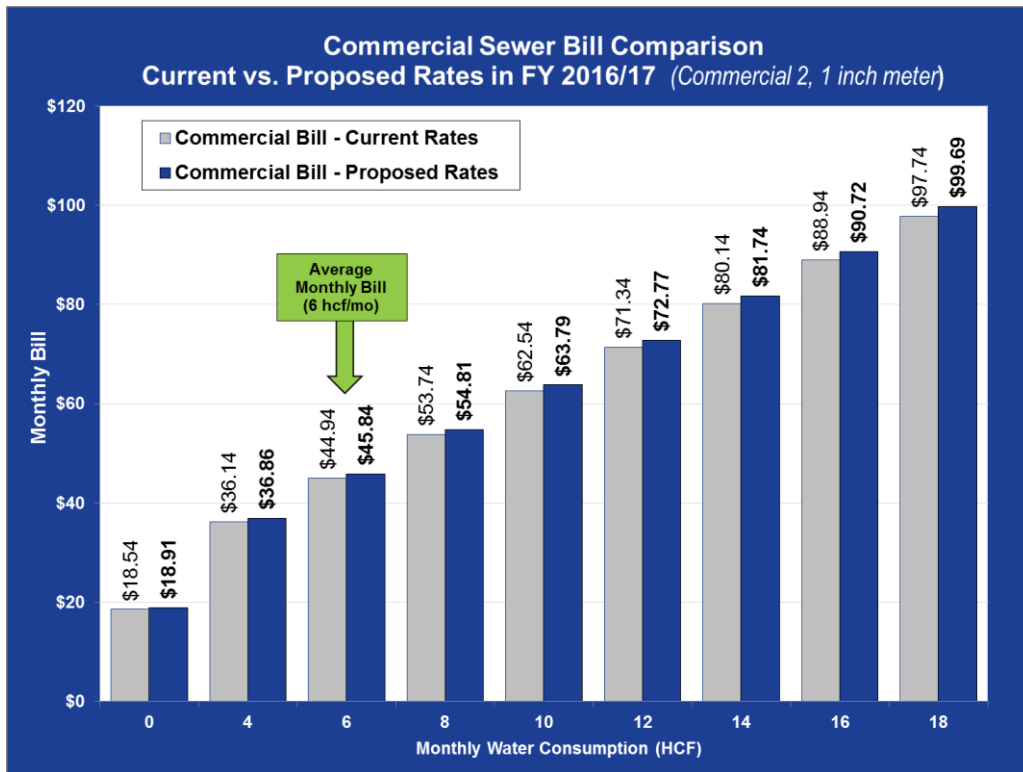
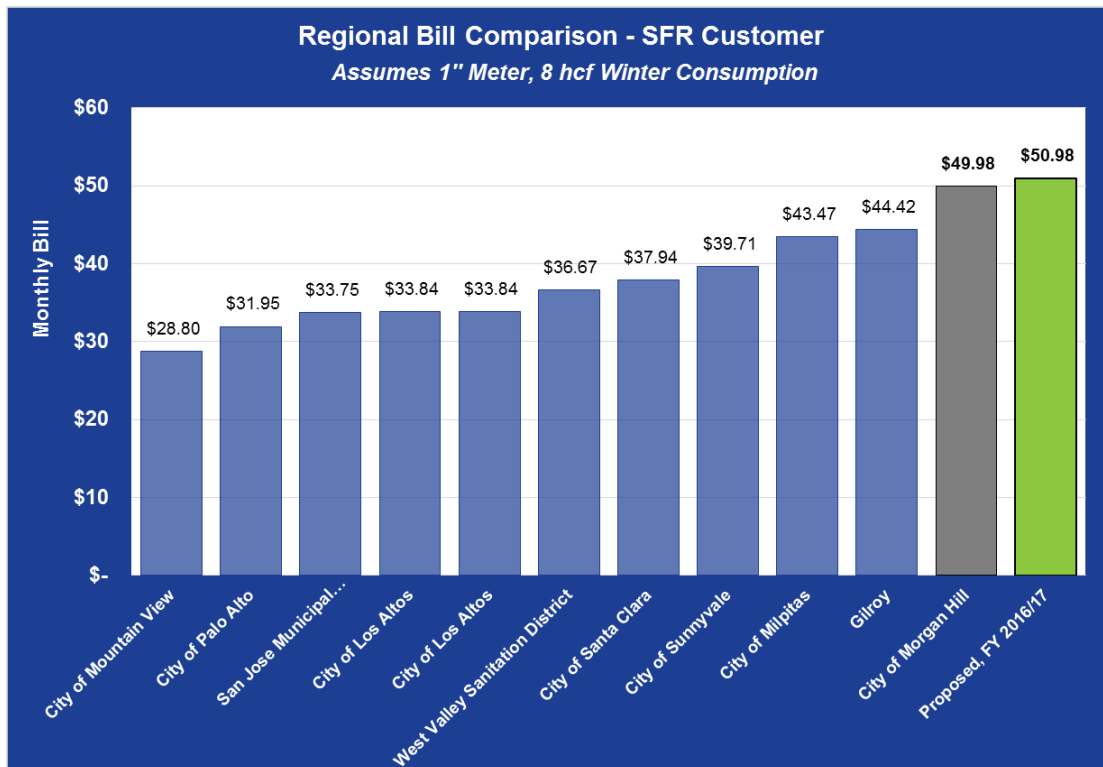


Figure 23. Regional Sewer Bill Comparison for Average Single-Family Residential Customer



SECTION 4. ZONAL ELEVATION SURCHARGES

OVERVIEW OF ZONAL ELEVATION SURCHARGES

The City has customers located in elevation zones for the water and wastewater systems, where customers are at higher elevation zones (for water) or lower elevation zones (for wastewater), and it costs more to pump water to, or pump wastewater from these customers. As part of this study, NBS evaluated the cost to serve customers in each zone, including annual power, maintenance and facility replacement costs, and developed surcharges for these customers.

Surcharges for each zone were calculated based on the costs allocated to each zone, along with the number of customers and the amount of water that flows through each zone. A number of alternatives were evaluated with regard to the costs recovered from and the structure of the zonal elevation surcharges. The surcharges presented in this report were ultimately selected by the City Council at the December 2, 2015 Council meeting¹⁶.

For the water utility, the zonal surcharges will recover power costs only from those customers that lie in the higher elevation zones. The City has decided to only recover power costs from zonal elevation surcharges, partially because the water system is sized to provide fire protection, not just water service. Since fire protection in the higher elevation zones is a community-wide issue, the costs for the infrastructure are shared community-wide. As decided by the City Council, the water zonal surcharges will be collected in a similar manner to general water rates where a fixed charge of \$2.19 per month from each customer will recover 50% of the power costs, and a volumetric charge of \$0.10 per hcf of water consumption will recover the other 50% of power costs. **Figure 24** shows the water zonal elevation surcharges that will be implemented on April 1, 2016.

Figure 24. Water Zonal Elevation Surcharges

Water Enterprise Zonal Surcharges								
	Surcharge Costs	FIXED SURCHARGES (for 50% of Power Costs)			VOLUMETRIC SURCHARGES (for 50% of Power Costs)			Total Revenue
Elevation Zones	Annual Power Costs	Number of Customers	Costs to Recover in Fixed Surcharge	Fixed Monthly Surcharge (\$/customer)	Annual Flow (hcf)	Costs to Recover in Volumetric Surcharge	Volumetric Surcharges (\$/hcf)	Fixed + Volumetric Revenue from Surcharges
All Zones	\$ 180,770	3,446	\$ 90,385	\$2.19	926,821	\$ 90,385	\$0.10	\$ 180,770
Total	\$ 180,770	3,446	\$ 90,385	--	926,821	\$ 90,385	--	\$ 180,770

Currently, for the wastewater utility, customers located in the lower elevation zones pay a fixed monthly surcharge of \$6.16, per customer¹⁷. The new zonal surcharges will recover the costs of power and facility replacement. The City has decided to recover both the power and facility replacement costs from wastewater zonal elevation surcharges because the wastewater system is sized to move waste from the customers benefitting from the additional system facilities, which provide no community-wide benefit as the water system has with fire protection. The City Council decided the wastewater zonal surcharges will be collected from a fixed charge of \$8.46 per month from each customer located in the lower elevation zones. **Figure 25** shows the wastewater zonal elevation surcharges that will be implemented on April 1, 2016.

¹⁶ NBS developed several alternatives for zonal elevation surcharges for the City to consider in this process. However, the City Council decided to move forward with surcharges developed by City staff (not NBS). Per direction from City staff, the surcharges selected by the Council are documented in this report, since the City's intention is to adopt them as part of this rate setting process.

¹⁷ Per City Staff 12/10/2015.

Figure 25. Wastewater Zonal Elevation Surcharges

Wastewater Enterprise Zonal Elevation Surcharges						
FIXED SURCHARGES (for Facility Replacement & Power Costs)						
Elevation Zones	Annual Replacement of Facility Cost	Annual Power Costs	Total Costs to Recover	Number of Customers	Fixed Monthly Surcharge (\$/customer)	Revenue from Surcharges
All Zones	\$ 181,250	\$ 29,100	\$ 210,350	2,071	\$8.46	\$ 210,350
Total	\$ 181,250	\$ 29,100	\$ 210,350	2,071	--	\$ 210,350

A five-year projection of costs was prepared as part of the zonal elevation surcharge analysis, in order to provide a five-year schedule of surcharges that is consistent with the rate schedules prepared in this study for the water and wastewater utilities. **Figures 26 and 27** show the five year schedules of zonal elevation surcharges. Please refer to Appendix C of this report, which show the detail of how the surcharges were calculated.

Figure 26. Five-Year Schedule of Water Zonal Elevation Surcharges

Water Enterprise Zonal Elevation Surcharges: Fixed and Volumetric Surcharges					
Elevation Zones	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
	% Increase ¹	4.0%	4.0%	4.0%	4.0%
Fixed Monthly Surcharges (\$/customer)	\$2.19	\$2.27	\$2.36	\$2.46	\$2.56
Volumetric Surcharges (\$/hcf)	\$0.10	\$0.10	\$0.11	\$0.11	\$0.11

1. The Annual % increase is due to cost inflation applied to zone-specific costs.

Figure 27. Current vs. Proposed Five-Year Schedule of Wastewater Zonal Elevation Surcharges

Wastewater Enterprise Zonal Elevation Surcharges: Fixed Surcharges						
Elevation Zones	Current Rates	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
	% Increase ¹	--	3.6%	3.6%	3.6%	3.6%
Fixed Monthly Surcharges (\$/customer)	\$6.16	\$8.46	\$8.77	\$9.08	\$9.41	\$9.75

1. The Annual % increase is due to cost inflation applied to zone-specific costs.

SECTION 5. OUTSIDE-CITY CUSTOMERS

The City currently charges customers who are located outside City boundaries a 50% surcharge on their water bills. Since a detailed cost analysis for outside city customers was not performed as part of this study, NBS recommends reducing the surcharge to 25%. Based on typical industry practices, customers located outside of the municipality's boundaries are charged some type of surcharge. While it is most defensible to use cost-based principles and methodologies to establish such surcharges, in the absence of such an analysis, and given the level of scrutiny given to all charges recently, we believe that 25% is a more reasonable rate differential to charge these customers.

SECTION 6. RECOMMENDATIONS AND NEXT STEPS

CONSULTANT RECOMMENDATIONS

NBS recommends the City take the following actions for the water and wastewater rates:

- **Approve and Accept This Study Report:** NBS recommends that the City Council formally approve and adopt this report and its recommendations. This will provide documentation of the rate study analyses and the basis for analyzing potential changes to future rates.
- **Adopt Reserve Fund Targets:** NBS recommends the City Council adopt the consultant proposed reserve fund targets described in Sections 2 and 3 of this report for the water and wastewater utilities. The City should periodically evaluate reserve fund levels and make it a long-term goal to achieve these levels for the Operating, Capital, and Rate Stabilization Reserves.
- **Complete a Legal Review:** This rate study outlines proposed new rates. Particularly in light of changing legal requirements, these rates should be reviewed by competent legal counsel with respect to compliance with Proposition 218 and related State laws prior to adoption, including language for new resolutions and public notices required to implement these rates.
- **Adopt Elevation Zone Surcharges:** Adopt the zonal surcharges shown in Figures 26 and 27 in Section 4 of this report; these surcharges were developed by City staff at the direction of the City Council. While NBS developed other surcharge alternatives for consideration, the City Council chose to proceed with the charges presented in this report. Upon approval of the City's legal counsel, the City should adopt these surcharges.
- **Implement Recommended Levels of Rate Increases and Proposed Rates:** Based on the analysis presented in this report, the City Council should implement the proposed water rates recommended in this report for the next five years as shown in Figure 13 and the wastewater rates proposed in Figure 20. These rate adjustments reflect industry standards and are necessary to achieve the following objectives:
 - Water rates promote revenue stability and reflect the cost of providing water service to each customer class.
 - Wastewater rates meet projected revenue requirements.
 - Zonal surcharges intended to recover a portion of the additional cost of providing water and wastewater service to customers in the elevation zones.
 - Maintaining the financial health of the City's water and wastewater utilities.

NEXT STEPS

- **Annually Review Rates and Revenue** – Any time an Agency adopts new utility rates or rate structures, those new rates should be closely monitored over the next several years to ensure the revenue generated is sufficient to meet the annual revenue requirements. Changing economic and drought-related water consumption patterns underscore the need for this review, as well as potential and unseen changing revenue requirements, particularly those related to environmental regulations that can significantly affect capital improvements and repair and replacement costs.

Note: The attached Technical Appendices provide detailed information on the analysis of the water and wastewater revenue requirements, cost of service and rate design analyses that have been summarized in this report.

PRINCIPAL ASSUMPTIONS AND CONSIDERATIONS

In preparing this report and the recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters, number of customer accounts, conditions and events that may occur in the future. This information and assumptions, including the City's budgets and customer account information from City staff, were provided by sources we believe to be reliable, although NBS has not independently verified this data.

While we believe NBS' use of such information and assumptions is reasonable for the purpose of this report and its recommendations, some assumptions will invariably not materialize as stated herein or may vary significantly due to unanticipated events and circumstances. Therefore, the actual results can be expected to vary from those projected to the extent that actual future conditions differ from those assumed by us or provided to us by others.

TECHNICAL APPENDICES

Brief Overview of the “San Juan Capistrano Case”:

On April 20, 2015, the California Superior Court ruling in the San Juan Capistrano case¹⁸ created stricter standards for how tiered rates should be set under Prop 218 requirements. One of the lead attorneys for the defendant (City of San Juan Capistrano), Kelly Salt of Best Best & Krieger, provided the following guidance on what this case means for water rates:

“Although the opinion in Capistrano Taxpayers Association v. City of San Juan Capistrano held that tiered rates, or inclining block rates that go up progressively in relation to usage, are compatible with Proposition 218, in this instance, the court concluded that the City failed to demonstrate that the tiers correspond to the actual cost of providing service at a given level of usage. The court rejected reliance on article X, section 2 to promote water conservation as the sole basis for establishing tiers, holding the city had to show that the various usage tiers corresponded with its actual costs of delivering water in those increments.”

and

“...rates were not proportional to the cost of service because the City did not calculate the incremental cost of providing water at the level of use represented by each tier. Specifically, the court criticized the City for not correlating its rates within each tier to the prices of water used within each tier.”¹⁹

As a result of the San Juan Capistrano case, many water agencies with tiered rates have either eliminated their tiered rates in favor of a uniform rate, or revised their tiered rates to better comply with the standards related to the San Juan Capistrano case.

¹⁸ Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano, Opinion G048969, Super. Ct. No 30-2012-00594579, Filed April 20, 2015.

¹⁹ See “Legal Alerts – California Court of Appeal Holds City's Tiered Water Rate Structure Violates Proposition 218” by Kelly Salt, Best Best & Krieger, April 21, 2015.

APPENDIX A - WATER RATE ANALYSIS

TABLE 1
FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

RATE REVENUE REQUIREMENTS SUMMARY	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Sources of Water Funds					
Rate Revenue:					
Standard Rate Revenue - Prevailing Rates ¹	\$ 7,329,555	\$ 7,476,146	\$ 8,703,075	\$ 8,877,136	\$ 9,054,679
Non-Rate Revenue in Operations & System Replacement Funds:					
Interest Income ²	47,138	3,182	3,451	6,223	16,070
Other, Non-Rate Revenues	1,111,704	939,388	923,229	948,840	962,224
Total Sources of Funds	\$ 8,488,396	\$ 8,418,715	\$ 9,629,755	\$ 9,832,199	\$ 10,032,973
Uses of Water Funds					
Operating Expenses ³:					
Water Operations	\$ 7,241,771	\$ 7,509,564	\$ 8,143,747	\$ 8,440,968	\$ 8,719,355
Water Operations - Capital Expenses	889,151	817,661	819,815	822,013	824,256
Utility Billing	599,894	614,764	633,407	655,040	676,212
Water Conservation	188,239	103,798	106,900	110,116	113,423
Water Rate Stabilization Fund	603	624	645	668	691
Water System Replacement Fund	4,993	5,160	5,333	5,511	5,696
Subtotal: Operating Expenses	\$ 8,924,651	\$ 9,051,571	\$ 9,709,848	\$ 10,034,316	\$ 10,339,632
Other Expenditures:					
Existing Debt Service (Replacement Fund Allocation of 59%) ⁴	\$ 939,538	\$ 945,549	\$ 944,774	\$ 943,336	\$ 944,184
New Debt Service	-	-	-	-	-
Rate-Funded Capital Expenses	-	-	419,639	1,109,361	1,148,410
Subtotal: Other Expenditures	\$ 939,538	\$ 945,549	\$ 1,364,413	\$ 2,052,697	\$ 2,092,595
Total Uses of Water Funds	\$ 9,864,189	\$ 9,997,120	\$ 11,074,261	\$ 12,087,013	\$ 12,432,227
plus: Revenue from Rate Increases ⁵	404,271	1,496,029	2,498,782	3,377,134	4,350,880
Increase/Decrease to Reserves	\$ (971,522)	\$ (82,376)	\$ 1,054,276	\$ 1,122,320	\$ 1,951,627
Net Revenue Req't. (Total Uses less Non-Rate Revenue)	\$ 8,705,347	\$ 9,054,551	\$ 10,147,581	\$ 11,131,951	\$ 11,453,933
Total Rate Revenue After Rate Increases	\$ 7,733,825	\$ 8,972,175	\$ 11,201,856	\$ 12,254,271	\$ 13,405,560
Projected Annual Rate Revenue Increase	9.00%	7.25%	7.25%	7.25%	7.25%
Cumulative Increase from Annual Revenue Increases ⁶	15.81%	24.21%	33.21%	42.87%	53.23%
Debt Coverage After Rate Increase ⁷	1.59	1.87	2.62	3.10	3.61
Target Debt Coverage	1.20	1.20	1.20	1.20	1.20
Estimated Annual Change in Rate Revenue Due to Conservation ⁸	-18%	2%	16%	2%	2%

- City's revenue projections were updated to assume 30% conservation effective FY 2015/16 and beyond with 2% annual growth.
- Interest earnings for FY 2015/16 are per the City's budget projections. For all future years, interest earnings are calculated here based on historical LAIF returns and projected cash balances.
- The FY16-FY20 operating expenses are per the City's budget projections. Inflationary factors are applied to these expenses to project costs in FY21 and beyond.
- Per Staff's direction in an email on 10.7.15, the debt service payment on the 2014 Water Revenue Bonds is split as follows:
41% to the Water Impact Fund (651) and 59% to the Water System Replacement Fund (653).
- Revenue from rate increases in FY 2015/16 assumes previously approved rates are implemented on 1/1/2016, so the City will collect 6 months of the increased rate revenue for the first year of the adjustment. The rate increase for shown for FY 2016/17 will be effective July 1, 2016, and that all future rate increases will occur on January 1st in 2017 and beyond.
- The cumulative increase of 15.81% in FY 2015/16 is a result of applying the previously approved and adopted 6.25% increase that will be effective on 1/1/2016 and the 9% increase that will be adopted on 4/1/2016 as part of this rate setting process.
- Per the Installment Loan Agreement for the 2014 Revenue Bonds, the City is required to maintain a debt coverage ratio of 1.20 for these bond issues and all other parity debt. Connection Fee revenue and interest earnings in that fund are figured into this calculation.
- Per City Staff rate revenue projections. An overall decrease in rate revenue of 18% is expected in FY 2015/16 and a rebound in consumption in FY 2017/18.

TABLE 2
RESERVE FUND SUMMARY

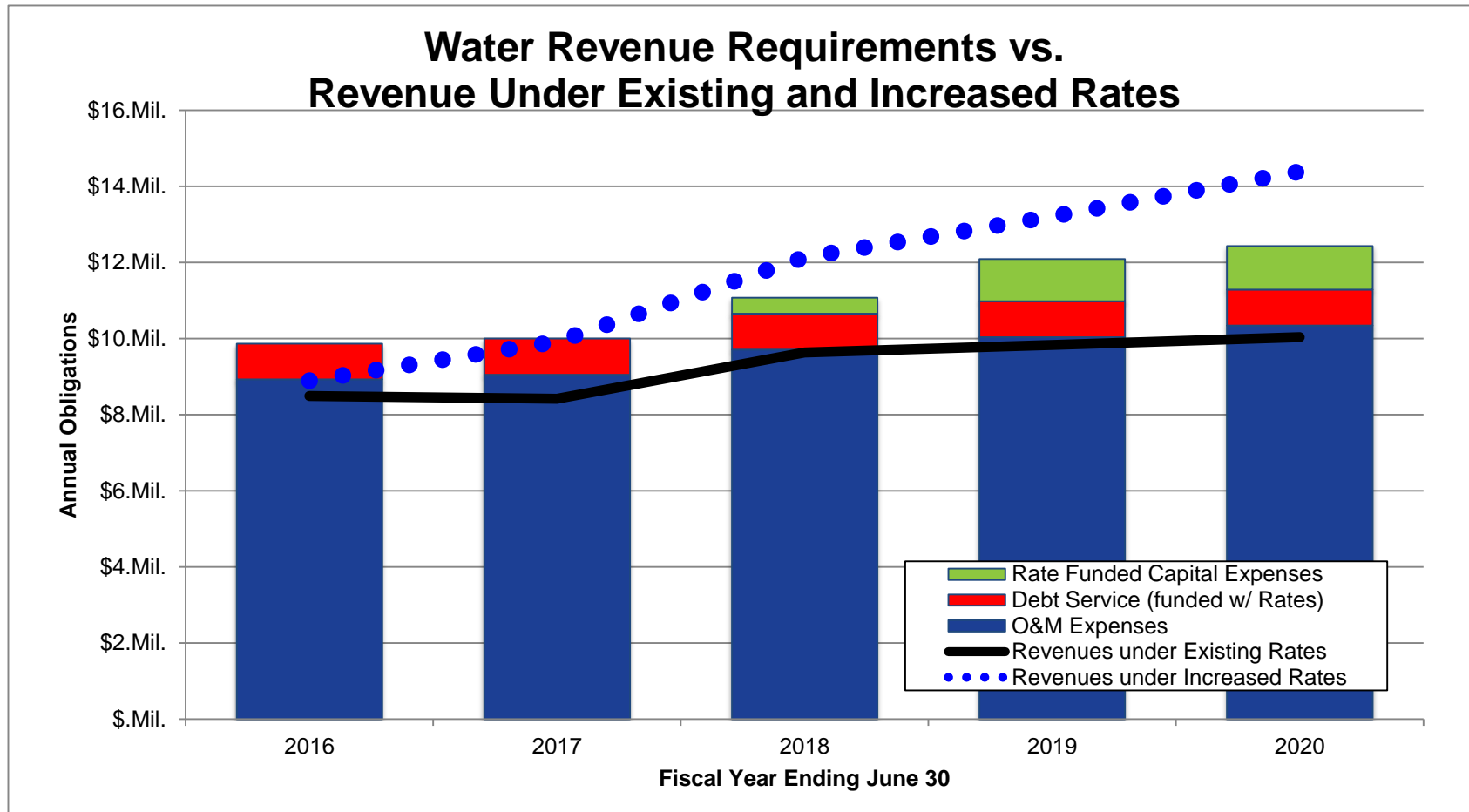
SUMMARY OF CASH ACTIVITY	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Total Beginning Cash ¹	\$ 6,482,485				
Water Operations Fund (650)					
Beginning Reserve Balance ¹	\$ 2,744,148	\$ 1,272,626	\$ 690,250	\$ 1,244,526	\$ 2,142,638
Plus: Net Cash Flow (After Rate Increases)	(971,522)	(82,376)	1,054,276	1,122,320	1,951,627
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-
Plus: Transfer of Rate Stabilization Reserve Surplus	-	-	-	100,792	22,807
Less: Transfer Out to Water System Replacement Reserve	-	-	-	-	(1,532,072)
Less: Transfer Out to Rate Stabilization Fund	(500,000)	(500,000)	(500,000)	(325,000)	(45,000)
Ending Operating Reserve Balance	\$ 1,272,626	\$ 690,250	\$ 1,244,526	\$ 2,142,638	\$ 2,540,000
Target Ending Balance (90-days of O&M) ²	\$ 2,231,000	\$ 2,263,000	\$ 2,427,000	\$ 2,509,000	\$ 2,585,000
Water System Replacement Fund (653)					
Beginning Reserve Balance ¹	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Grant Proceeds	-	-	-	-	-
Plus: Transfer of Operating Reserve Surplus	-	-	-	-	1,532,072
Less: Use of Reserves for Capital Projects	-	-	-	-	-
Ending Capital Improvement & Depreciation Reserve Bal.	\$ -	\$ -	\$ -	\$ -	\$ 1,532,072
Target Ending Balance (3% of Assets) ³	\$ 1,407,700	\$ 1,399,400	\$ 1,426,500	\$ 1,437,600	\$ 1,436,900
Rate Stabilization Fund (652)					
Beginning Reserve Balance ¹	\$ 36,785	\$ 536,968	\$ 1,038,310	\$ 1,543,502	\$ 1,775,427
Plus: Contributions to Rate Stabilization Fund	500,000	500,000	500,000	325,000	45,000
Plus: Interest Earnings ⁴	183	1,342	5,192	7,718	13,316
Less: Transfer of Surplus to Operating Reserve	-	-	-	(100,792)	(22,807)
Ending Debt Reserve Balance	\$ 536,968	\$ 1,038,310	\$ 1,543,502	\$ 1,775,427	\$ 1,810,936
Target Ending Balance (20% of Estimated Revenue) ²	\$ 1,465,911	\$ 1,495,229	\$ 1,740,615	\$ 1,775,427	\$ 1,810,936
Ending Balance - Excludes Debt Reserve	\$ 1,809,594	\$ 1,728,560	\$ 2,788,028	\$ 3,918,065	\$ 5,883,008
Minimum Target Ending Balance - Excludes Debt Reserve	\$ 5,104,611	\$ 5,157,629	\$ 5,594,115	\$ 5,722,027	\$ 5,832,836
Ending Surplus/(Deficit) Compared to Reserve Targets	\$ (3,295,017)	\$ (3,429,069)	\$ (2,806,087)	\$ (1,803,962)	\$ 50,172
Days Cash on Hand for Unrestricted Funds ⁵	67	64	96	131	191

CITY OF MORGAN HILL
WATER RATE STUDY
Financial Plan and Reserve Projections

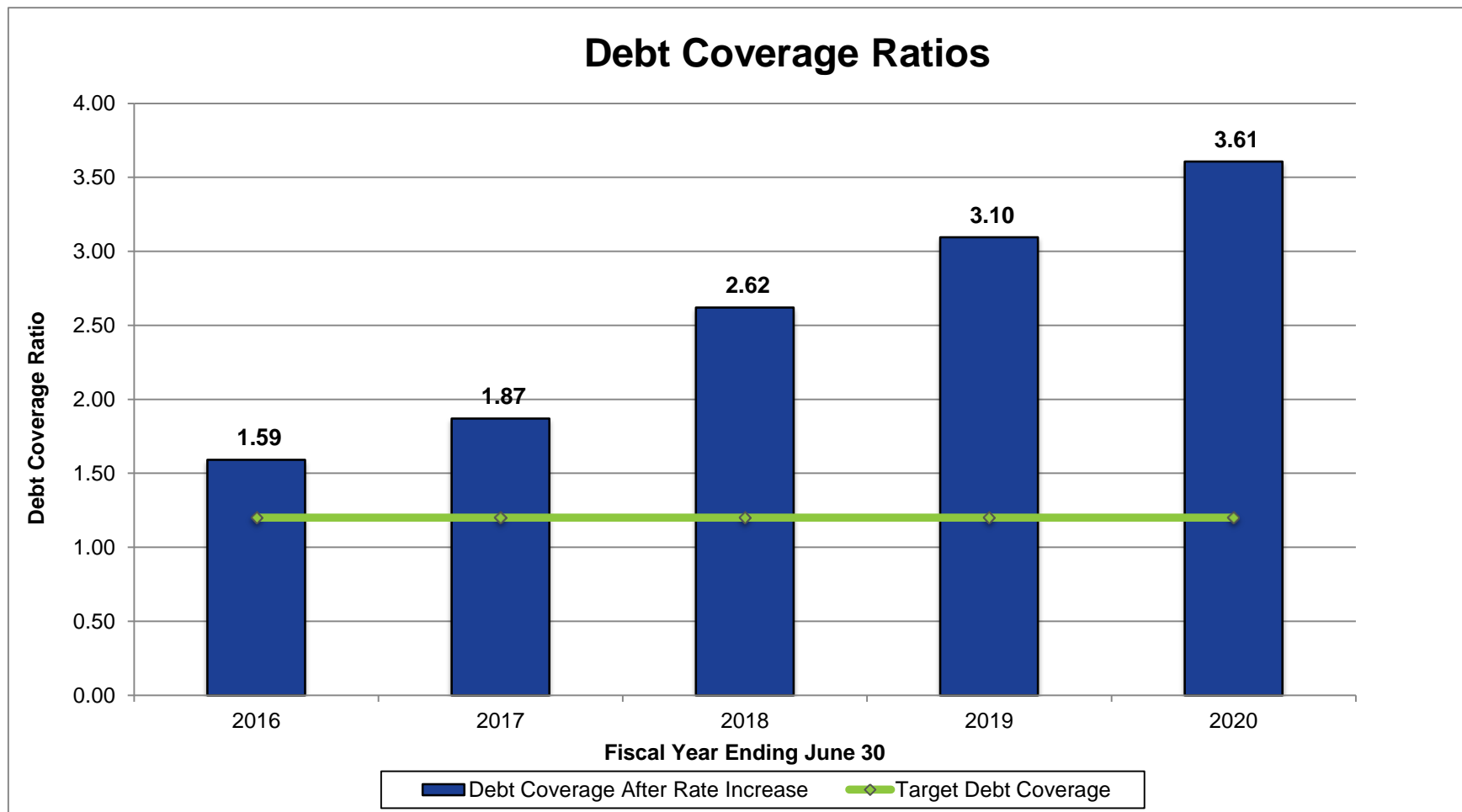
Financial Plan & Reserve Summary

SUMMARY OF CASH ACTIVITY, continued	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Restricted Reserves:					
Impact Fund (651)					
Beginning Reserve Balance ¹	\$ 3,701,552	\$ 4,712,114	\$ 4,272,254	\$ 3,336,685	\$ 2,953,156
Plus: Interest Earnings ⁴	24,641	11,780	21,361	16,683	22,149
Plus: Impact Fee Revenue ⁶	1,652,888	1,306,776	935,980	935,980	883,000
Less: Annual Operating Expenditures	(14,067)	(14,380)	(14,704)	(15,037)	(15,382)
Less: Debt Service (Impact Fund Allocation of 41%)	(652,899)	(657,076)	(656,538)	(655,539)	(656,128)
Less: Use of Reserves for Capital Projects	-	(1,086,960)	(1,221,669)	(665,616)	(229,682)
Ending Connection Fee Fund Balance	\$ 4,712,114	\$ 4,272,254	\$ 3,336,685	\$ 2,953,156	\$ 2,957,112
<i>Annual Interest Earnings Rate ⁵</i>	<i>0.25%</i>	<i>0.25%</i>	<i>0.50%</i>	<i>0.50%</i>	<i>0.75%</i>
Bond Project Fund					
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Loan Financing	-	-	-	-	-
Plus: Revenue Bond Proceeds	-	-	-	-	-
Less: Use of Bond & Loan Funds for Capital Projects	-	-	-	-	-
Ending Bond Project Fund Balance	\$ -	\$ -	\$ -	\$ -	\$ -
<i>Target Ending Balance</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>
Debt Reserve					
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Reserve Funding from New Debt Obligations	-	-	-	-	-
Plus: Interest Earnings	-	-	-	-	-
Less: Transfer of Surplus to Operating Reserve	-	-	-	-	-
Ending Debt Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -
<i>Target Ending Balance</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>

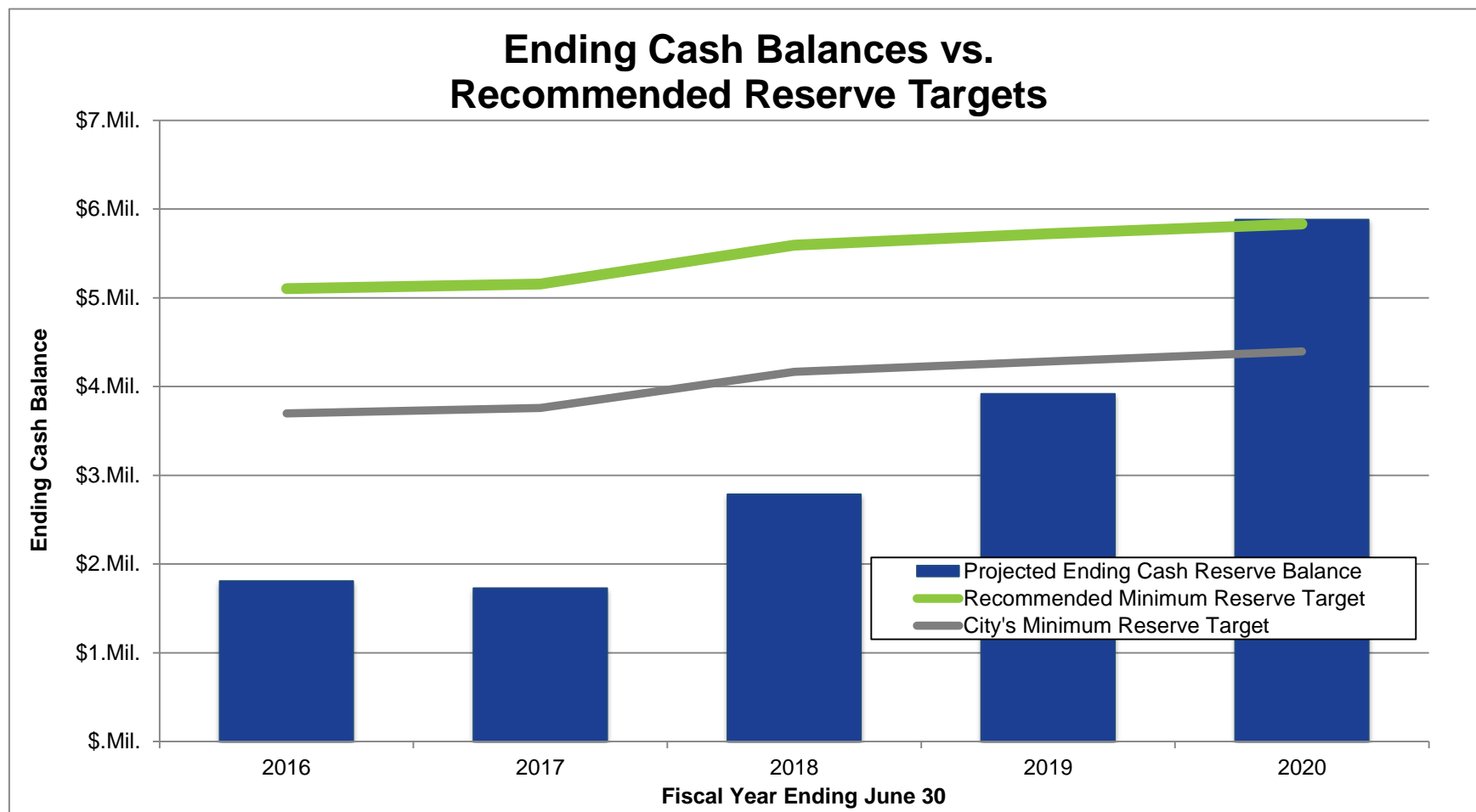
- Total beginning cash is the sum of the projected cash balances in Funds 650, 651, 652, and 653, as of 07/01/2015;
Cash Balances - Budget Pages.xls file provided by City Staff.
- Reserve targets are set according to existing City policy.
- The Water System Replacement reserve target is set to 3% of net assets.
- Interest earnings are per the City's adopted budget for FY 2015/16, and calculated herein for all future years,
per historical interest earning rates for funds invested in LAIF as referenced on the California Treasurer's Office website.
Future years earnings were conservatively estimated and phase into the historical 10 year average interest earnings rate.
- Days cash on hand represents the number of days cash the City has available to cover operating expenses and debt service payments.
- Impact fee revenue projections for FY 2015/16 - 2019/20 are from the following file: Operating Budget FY 2013-14 to FY 2015-16.xls.



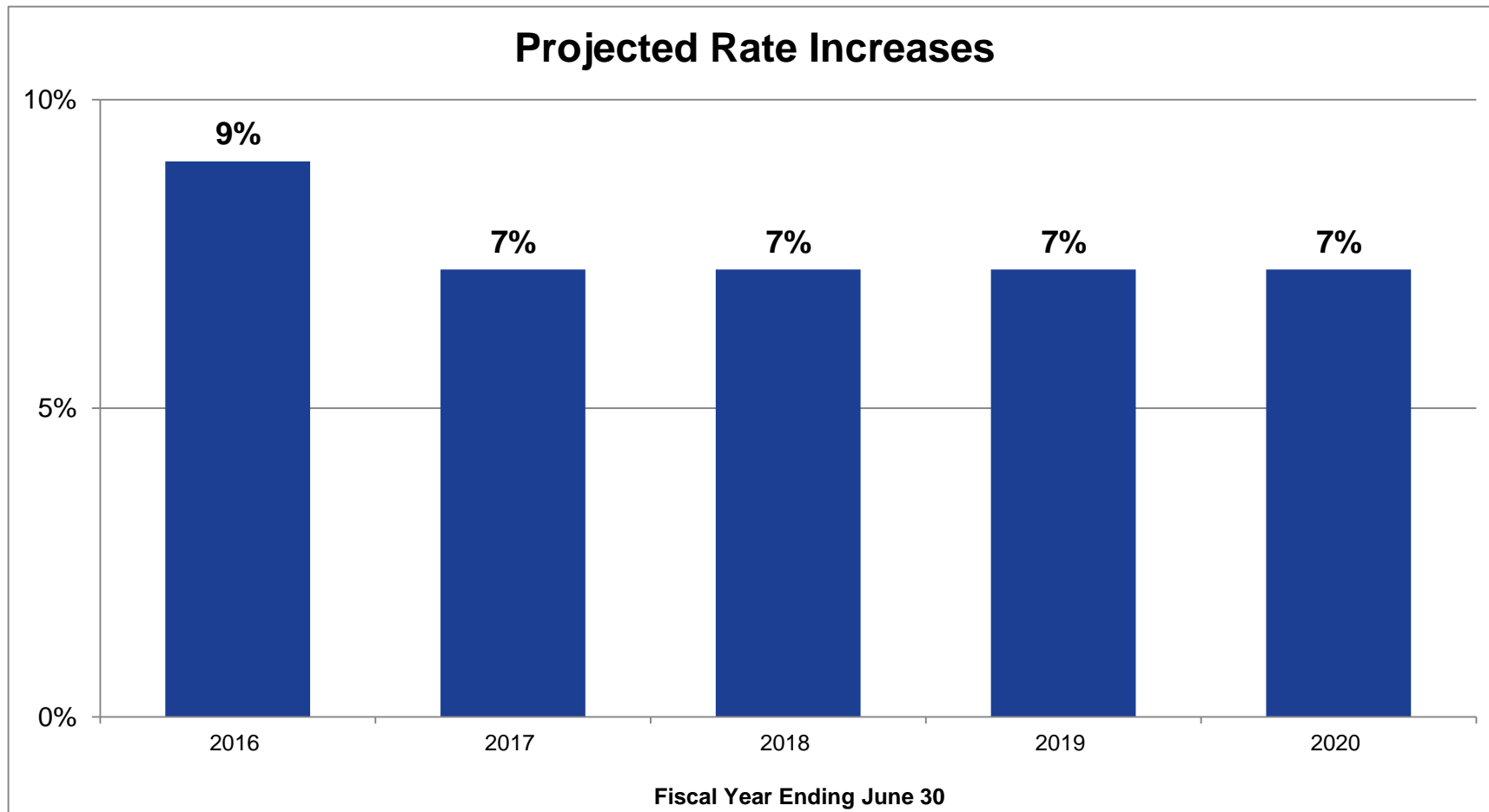
As shown in the figure above, by the end of FY 2019/20, the utility is projected to run a surplus if proposed rate increases are implemented. However, at that point any funds collected in excess of the annual revenue requirement will be used to replenish reserve funds that are projected to be below recommended levels through the end of FY 2018/19.



As demonstrated in the figure above, the utility is projected to exceed the debt coverage ratio of 1.20, that is required by bond covenants for the outstanding 2014 Water Revenue Bonds.



As shown in the figure above, the utility's reserves are projected to be significantly below the recommended minimum reserve target through the end of FY 2018/19. Beginning in FY 2019/20, if the proposed rate adjustments are implemented, the utility will be in a position to begin replenishing reserve funds and meet the recommended minimum reserve target by the end of the fiscal year.



CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

REVENUE FORECAST ¹

WATER OPERATIONS	Basis	2016	2017	2018	2019	2020
<i>Water Operations Fund (650)</i>						
INTEREST INCOME ²	See FP	\$ 18,090	\$ -	\$ -	\$ -	\$ -
RENT & CONCESSIONS	6	\$ 70,147	\$ 72,747	\$ 75,435	\$ 78,268	\$ 81,162
WATER SALES ³	1	\$ 7,329,555	\$ 7,476,146	\$ 8,703,075	\$ 8,877,136	\$ 9,054,679
FRONT FOOTAGE/OFFSITE	6	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500
PERCHLORATE SURCHARGE	6	\$ -	\$ -	\$ -	\$ -	\$ -
UB COLLECTIONS	6	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319
METER INSTALL & SERVICE	1	\$ 215,325	\$ 168,300	\$ 131,175	\$ 131,175	\$ 123,750
FIRE HYDRANT CHARGE	6	\$ 50,000	\$ 51,000	\$ 52,530	\$ 54,106	\$ 55,729
OTHER REVENUE	6	\$ -	\$ -	\$ -	\$ -	\$ -
REIMBURSEMENT OF EXPENSES	6	\$ 20,600	\$ 21,218	\$ 21,855	\$ 22,510	\$ 23,185
MISC. SALES	6	\$ -	\$ -	\$ -	\$ -	\$ -
SURPLUS SALES	6	\$ -	\$ -	\$ -	\$ -	\$ -
MISC. REVENUE	6	\$ -	\$ -	\$ -	\$ -	\$ -
ANNUAL BACKFLOW INSPECTION	6	\$ -	\$ -	\$ -	\$ -	\$ -
UTILITY ACCOUNT SET-UP	1	\$ 56,650	\$ 58,350	\$ 60,100	\$ 61,903	\$ 63,760
CONSTRUCTION BACKFLOW INSPECTION	6	\$ 412	\$ 424	\$ 437	\$ 450	\$ 464
CONST.INSPECT.-BACKFLOW	6	\$ -	\$ -	\$ -	\$ -	\$ -
UTILITY BILL DELINQ CHR	1	\$ 20,600	\$ 21,218	\$ 21,855	\$ 22,510	\$ 23,185
DELINQUENT BILL CHARGE	1	\$ 114,493	\$ 119,064	\$ 120,776	\$ 121,717	\$ 124,135
UTILITY SERVICE CALL	1	\$ 59,508	\$ 63,233	\$ 65,848	\$ 72,100	\$ 72,100
CHGS-CURR/PLANS & SPECS	6	\$ -	\$ -	\$ -	\$ -	\$ -
TRANSFER FROM-640 (SEWER OPS)	6	\$ 316,409	\$ 309,212	\$ 318,533	\$ 329,350	\$ 339,935
TRANSFER FROM-653 (WATER CIP) ²	See FP	\$ -	\$ -	\$ -	\$ -	\$ -
TRANSFER FROM-652 (WATER STABL) ²	See FP	\$ -	\$ -	\$ -	\$ -	\$ -
<i>Water Impact Fund (651)</i>						
INTEREST INCOME ²	See FP	\$ 24,641	\$ -	\$ -	\$ -	\$ -
DEVELOPMENT IMPACT FEES (AB1600)	6	\$ 1,652,888	\$ 1,306,776	\$ 935,980	\$ 935,980	\$ 883,000
OTHER REVENUE	6	\$ -	\$ -	\$ -	\$ -	\$ -
BOND PROCEEDS	6	\$ -	\$ -	\$ -	\$ -	\$ -
CHGS-CURR/PLANS & SPECS	6	\$ -	\$ -	\$ -	\$ -	\$ -
TRANSFER FROM-653 (WATER CIP) ²	See FP	\$ -	\$ -	\$ -	\$ -	\$ -
<i>Water Rate Stabilization Fund (652)</i>						
INTEREST INCOME ²	See FP	\$ 183	\$ -	\$ -	\$ -	\$ -
<i>Water System Replacement Fund (653)</i>						
INTEREST INCOME ²	See FP	\$ 29,048	\$ -	\$ -	\$ -	\$ -
OTHER REVENUE	6	\$ -	\$ -	\$ -	\$ -	\$ -
BOND PROCEEDS	6	\$ -	\$ -	\$ -	\$ -	\$ -
CAPITAL CONTRIBUTIONS	6	\$ 133,000	\$ -	\$ -	\$ -	\$ -
CHGS-CURR/PLANS & SPECS	6	\$ -	\$ -	\$ -	\$ -	\$ -
TRANSFER FROM-650 (WATER OPS) ²	See FP	\$ -	\$ -	\$ -	\$ -	\$ -
SPECIAL DEPOSITS	6	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL: REVENUE		\$10,166,108	\$ 9,722,309	\$10,562,284	\$10,761,956	\$10,899,904

CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

REVENUE SUMMARY:

WATER OPERATIONS	2016	2017	2018	2019	2020
<i>Water Operations Fund (650)</i>					
WATER RATE REVENUE	\$ 7,329,555	\$ 7,476,146	\$ 8,703,075	\$ 8,877,136	\$ 9,054,679
INTEREST INCOME ²	\$ 18,090	\$ -	\$ -	\$ -	\$ -
OTHER REVENUE	\$ 978,704	\$ 939,388	\$ 923,229	\$ 948,840	\$ 962,224
<i>Water Impact Fund (651)</i>					
IMPACT FEE REVENUE	\$ 1,652,888	\$ 1,306,776	\$ 935,980	\$ 935,980	\$ 883,000
INTEREST INCOME ²	\$ 24,641	\$ -	\$ -	\$ -	\$ -
<i>Water Rate Stabilization Fund (652)</i>					
INTEREST INCOME ²	\$ 183	\$ -	\$ -	\$ -	\$ -
<i>Water System Replacement Fund (653)</i>					
SYSTEM REPLACEMENT REVENUE	\$ 133,000	\$ -	\$ -	\$ -	\$ -
INTEREST INCOME ²	\$ 29,048	\$ -	\$ -	\$ -	\$ -

CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST ¹ :

WATER OPERATIONS FUND, Operations	Basis	2016	2017	2018	2019	2020
SALARIES						
SALARIES - GENERAL	3	\$ 1,558,185	\$ 1,597,346	\$ 1,636,743	\$ 1,677,124	\$ 1,718,515
SALARIES - PART-TIME TEMP	3	\$ -	\$ -	\$ -	\$ -	\$ -
EARNED LEAVE LIABILITY	3	\$ 20,512	\$ 20,512	\$ 20,512	\$ 20,512	\$ 20,512
OVERTIME - GENERAL	3	\$ 74,263	\$ 76,491	\$ 78,786	\$ 81,149	\$ 83,584
UNEMPLOYMENT INSURANCE	3	\$ -	\$ -	\$ -	\$ -	\$ -
RETIREMENT - GENERAL	3	\$ 278,043	\$ 294,583	\$ 307,577	\$ 321,874	\$ 335,832
DEFERRED COMPENSATION	3	\$ 31,164	\$ 31,947	\$ 32,735	\$ 33,542	\$ 34,370
GROUP INSURANCE	3	\$ 275,455	\$ 289,178	\$ 303,587	\$ 318,716	\$ 334,602
MEDICARE	3	\$ 23,718	\$ 24,318	\$ 24,923	\$ 25,543	\$ 26,178
INCOME PROTECTION INS	3	\$ 14,763	\$ 14,763	\$ 14,763	\$ 14,763	\$ 14,763
WORKERS COMP	3	\$ 79,751	\$ 49,817	\$ 51,056	\$ 52,326	\$ 53,628
BENEFITS	3	\$ 3,296	\$ 3,296	\$ 3,296	\$ 3,296	\$ 3,296
UNIFORM	3	\$ 9,548	\$ 9,835	\$ 10,130	\$ 10,433	\$ 10,746
SUPPLIES						
TAXES	6	\$ -	\$ -	\$ -	\$ -	\$ -
ELECTRIC	4	\$ 760,000	\$ 782,800	\$ 802,284	\$ 830,473	\$ 830,473
GROUNDWATER PRODUCTION ⁴	2	\$ 2,227,267	\$ 2,358,651	\$ 2,845,753	\$ 2,981,606	\$ 3,124,609
WATER/SEWER	2	\$ 2,758	\$ 2,841	\$ 2,926	\$ 3,014	\$ 3,105
TELEPHONE	2	\$ 21,218	\$ 21,855	\$ 22,510	\$ 23,185	\$ 23,881
GASOLINE & OIL	2	\$ 50,923	\$ 52,451	\$ 54,024	\$ 55,645	\$ 57,315
CONTRACT SERVICES	2	\$ 369,563	\$ 381,485	\$ 392,930	\$ 404,717	\$ 416,859
BANK CARD SERVICE FEES	2	\$ 438	\$ 451	\$ 464	\$ 478	\$ 493
RENTALS - OUTSIDE	2	\$ 2,652	\$ 2,732	\$ 2,814	\$ 2,898	\$ 2,985
STATIONERY & OFFICE SUPPLIES	2	\$ 9,548	\$ 9,835	\$ 10,130	\$ 10,433	\$ 10,746
COMPUTER HARDWARE-NON CAPITAL	2	\$ 4,774	\$ 4,917	\$ 5,065	\$ 5,217	\$ 5,373
COMPUTER SOFTWARE-NON CAPITAL	2	\$ 13,261	\$ 13,659	\$ 14,069	\$ 14,491	\$ 14,926
OTHER SUPPLIES	2	\$ 213,200	\$ 230,926	\$ 237,854	\$ 244,989	\$ 252,339
ADVERTISING	2	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194
PHOTOCOPYING	2	\$ 106	\$ 109	\$ 113	\$ 116	\$ 119
POSTAGE & FREIGHT	2	\$ 6,545	\$ 1,741	\$ 1,794	\$ 1,847	\$ 1,903
PRINTING	2	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319	\$ 2,388
AUTO MILEAGE	2	\$ 265	\$ 273	\$ 281	\$ 290	\$ 299
WATER/SEWER MAINTENANCE SVS	2	\$ 43,045	\$ 54,636	\$ 56,275	\$ 57,964	\$ 59,703
SMALL TOOLS	2	\$ 10,609	\$ 10,927	\$ 11,255	\$ 11,593	\$ 11,941
OTHER EXPENSE	2	\$ 38,000	\$ 39,140	\$ 40,314	\$ 41,524	\$ 42,769
TRAINING & EDUCATION	2	\$ 19,096	\$ 19,669	\$ 20,259	\$ 20,867	\$ 21,493
CONFERENCE & MEETINGS	2	\$ 3,183	\$ 3,278	\$ 3,377	\$ 3,478	\$ 3,582
MEMBERSHIP & DUES	2	\$ 15,914	\$ 16,391	\$ 16,883	\$ 17,389	\$ 17,911
SUBSCRIPTION & PUBLICATIONS	2	\$ 212	\$ 219	\$ 225	\$ 232	\$ 239
MAINT - BLDGS/IMPROVEMENTS	2	\$ 15,914	\$ 16,391	\$ 16,883	\$ 17,389	\$ 17,911
MAINT - MACHINE/EQUIPMENT	2	\$ 10,609	\$ 10,927	\$ 11,255	\$ 11,593	\$ 11,941
MAINT - AUTO/TRUCKS	2	\$ 26,523	\$ 27,318	\$ 28,138	\$ 28,982	\$ 29,851
SUB-TOTAL: WATER OPERATIONS FUND, Operations		\$ 6,237,504	\$ 6,478,986	\$ 7,085,357	\$ 7,353,167	\$ 7,602,372

CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST, continued ¹ :

WATER OPERATIONS FUND, Operations, continued	Basis	2016	2017	2018	2019	2020
CAPITAL						
MACHINERY/EQUIPMENT	2	\$ 86,700	\$ 88,434	\$ 90,203	\$ 92,007	\$ 93,847
COMPUTER EQUIPMENT	2	\$ 5,253	\$ 5,358	\$ 5,465	\$ 5,575	\$ 5,686
COMPUTER SOFTWARE	2	\$ 13,658	\$ 13,931	\$ 14,210	\$ 14,494	\$ 14,784
METERS	2	\$ 550,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,001
INTERNALSERVICES						
GENERAL LIABILITY INSURANCE	2	\$ 75,750	\$ 83,325	\$ 91,658	\$ 100,823	\$ 110,906
BUILDING MAINT - CURRENT SERVICES	2	\$ 54,220	\$ 55,846	\$ 57,522	\$ 59,247	\$ 61,025
BUILDING MAINT - FUTURE REPLACEMENT	2	\$ 2,670	\$ 2,750	\$ 2,832	\$ 2,917	\$ 3,005
FLEET REPLACEMENT	2	\$ 233,540	\$ 59,938	\$ 59,938	\$ 59,938	\$ 59,938
INFO SYSTEM SERVICES	2	\$ 116,855	\$ 120,361	\$ 123,972	\$ 127,691	\$ 131,521
GF ADMIN	2	\$ 205,534	\$ 212,727	\$ 220,173	\$ 227,879	\$ 235,855
TRANSFERS						
TRANSFER OUT-010 (GENERAL FUND)	2	\$ 436,623	\$ 437,722	\$ 438,854	\$ 440,019	\$ 441,220
TRANSFER OUT-232 (ENVIRONMENTAL PROGRAMS)	2	\$ 56,931	\$ 58,758	\$ 60,632	\$ 62,542	\$ 62,542
TRANSFER OUT-207 (GENL PLAN UPDATE)	2	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300	\$ 10,300
TRANSFER OUT - EMPLOYEE BENEFITS FUND	3	\$ 45,385	\$ 48,789	\$ 52,448	\$ 56,381	\$ 60,610
SUB-TOTAL: WATER OPERATIONS FUND, Operations		\$ 1,893,418	\$ 1,848,239	\$ 1,878,205	\$ 1,909,813	\$ 1,941,239
TOTAL: WATER OPERATIONS FUND, Operations		\$ 8,130,922	\$ 8,327,225	\$ 8,963,562	\$ 9,262,981	\$ 9,543,611

CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST, continued ¹ :

WATER OPERATIONS FUND, Utility Billing	Basis	2016	2017	2018	2019	2020
SALARIES						
SALARIES - GENERAL	3	\$ 217,289	\$ 224,669	\$ 229,421	\$ 236,043	\$ 241,944
SALARIES - PART-TIME TEMP	3	\$ -	\$ -	\$ -	\$ -	\$ -
EARNED LEAVE LIABILITY	3	\$ 4,385	\$ 4,385	\$ 4,385	\$ 4,385	\$ 4,385
OVERTIME - GENERAL	3	\$ -	\$ -	\$ -	\$ -	\$ -
UNEMPLOYMENT INSURANCE	3	\$ -	\$ -	\$ -	\$ -	\$ -
RETIREMENT - GENERAL	3	\$ 42,198	\$ 41,434	\$ 43,113	\$ 45,301	\$ 47,281
DEFERRED COMPENSATION	3	\$ 3,212	\$ 3,331	\$ 3,397	\$ 3,500	\$ 3,588
GROUP INSURANCE	3	\$ 51,825	\$ 55,129	\$ 57,878	\$ 60,764	\$ 63,794
MEDICARE	3	\$ 3,170	\$ 3,277	\$ 3,345	\$ 3,442	\$ 3,527
INCOME PROTECTION INS	3	\$ 2,345	\$ 2,345	\$ 2,345	\$ 2,345	\$ 2,345
WORKERS COMP	3	\$ 10,864	\$ 6,740	\$ 6,883	\$ 7,081	\$ 7,258
BENEFITS	3	\$ 1,302	\$ 1,302	\$ 1,302	\$ 1,302	\$ 1,302
CONTRACT LABOR	3	\$ -	\$ -	\$ -	\$ -	\$ -
SUPPLIES						
TELEPHONE	2	\$ 5,305	\$ 5,464	\$ 5,628	\$ 5,796	\$ 5,970
CONTRACT SERVICES	2	\$ 50,071	\$ 51,573	\$ 53,120	\$ 54,714	\$ 56,355
BANK CARD SERVICE FEES	2	\$ 59,489	\$ 61,274	\$ 63,112	\$ 65,005	\$ 66,955
STATIONERY & OFFICE SUPPLIES	2	\$ 1,273	\$ 1,311	\$ 1,351	\$ 1,391	\$ 1,433
COMPUTER HARDWARE-NON CAPITAL	2	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126
OTHER SUPPLIES	2	\$ -	\$ -	\$ -	\$ -	\$ -
ADVERTISING	2	\$ -	\$ -	\$ -	\$ -	\$ -
PHOTOCOPYING	2	\$ 115	\$ 118	\$ 122	\$ 125	\$ 129
POSTAGE & FREIGHT	2	\$ 53,045	\$ 54,636	\$ 56,275	\$ 57,964	\$ 59,703
PRINTING	2	\$ 849	\$ 874	\$ 900	\$ 927	\$ 955
AUTO MILEAGE	2	\$ -	\$ -	\$ -	\$ -	\$ -
TRAINING & EDUCATION	2	\$ 743	\$ 765	\$ 788	\$ 811	\$ 836
SUBSCRIPTION & PUBLICATIONS	2	\$ -	\$ -	\$ -	\$ -	\$ -
INTERNAL SERVICES						
GENERAL LIABILITY INSURANCE	2	\$ 5,769	\$ 6,346	\$ 6,980	\$ 7,679	\$ 8,446
BUILDING MAINT - CURRENT SERVICES	2	\$ 6,608	\$ 6,806	\$ 7,010	\$ 7,221	\$ 7,437
BUILDING MAINT - FUTURE REPLACEMENT	2	\$ 1,096	\$ 1,129	\$ 1,163	\$ 1,198	\$ 1,234
INFO SYSTEM SERVICES	2	\$ 25,230	\$ 25,987	\$ 26,767	\$ 27,570	\$ 28,397
GF ADMIN	2	\$ 45,673	\$ 47,271	\$ 48,926	\$ 50,638	\$ 52,411
TRANSFERS						
TRANSFER OUT - EMPLOYEE BENEFITS FUND	3	\$ 7,039	\$ 7,567	\$ 8,135	\$ 8,745	\$ 9,401
TOTAL: WATER OPERATIONS FUND, Utility Billing		\$ 599,894	\$ 614,764	\$ 633,407	\$ 655,040	\$ 676,212

CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST, continued ¹ :

WATER OPERATIONS FUND, Water Conservation	Basis	2016	2017	2018	2019	2020
SALARIES						
SALARIES - GENERAL	3	\$ 28,017	\$ 28,979	\$ 29,704	\$ 30,446	\$ 31,208
SALARIES - PART-TIME TEMP	3	\$ 10,640	\$ -	\$ -	\$ -	\$ -
EARNED LEAVE LIABILITY	3	\$ 1,902	\$ 1,902	\$ 1,902	\$ 1,902	\$ 1,902
UNEMPLOYMENT INSURANCE	3	\$ -	\$ -	\$ -	\$ -	\$ -
RETIREMENT - GENERAL	3	\$ 4,999	\$ 5,344	\$ 5,582	\$ 5,843	\$ 6,099
DEFERRED COMPENSATION	3	\$ 475	\$ 490	\$ 502	\$ 514	\$ 527
GROUP INSURANCE	3	\$ 2,651	\$ 2,783	\$ 2,921	\$ 3,067	\$ 3,220
MEDICARE	3	\$ 565	\$ 425	\$ 435	\$ 446	\$ 457
INCOME PROTECTION INS	3	\$ 231	\$ 231	\$ 231	\$ 231	\$ 231
WORKERS COMP	3	\$ 1,665	\$ 869	\$ 891	\$ 913	\$ 936
BENEFITS	3	\$ 327	\$ 327	\$ 327	\$ 327	\$ 327
SUPPLIES						
TELEPHONE	2	\$ 127	\$ 131	\$ 135	\$ 139	\$ 143
CONTRACT SERVICES	2	\$ 15,071	\$ 7,523	\$ 7,749	\$ 7,981	\$ 8,221
POSTAGE & FREIGHT	2	\$ 10,424	\$ 737	\$ 759	\$ 782	\$ 805
PRINTING	2	\$ 21,273	\$ 1,911	\$ 1,969	\$ 2,028	\$ 2,088
AUTO MILEAGE	2	\$ 712	\$ 234	\$ 241	\$ 248	\$ 255
OTHER EXPENSE	2	\$ 82,436	\$ 44,909	\$ 46,256	\$ 47,644	\$ 49,073
TRAINING & EDUCATION	2	\$ 424	\$ 437	\$ 450	\$ 464	\$ 478
CONFERENCE & MEETINGS	2	\$ 212	\$ 219	\$ 225	\$ 232	\$ 239
INTERNAL SERVICES						
GENERAL LIABILITY INSURANCE	2	\$ 420	\$ 462	\$ 508	\$ 559	\$ 615
GF ADMIN	2	\$ 5,154	\$ 5,335	\$ 5,522	\$ 5,715	\$ 5,915
TRANSFERS						
TRANSFER OUT - EMPLOYEE BENEFITS FUND	3	\$ 512	\$ 550	\$ 592	\$ 636	\$ 684
TOTAL: WATER OPERATIONS FUND, Water Conservation		\$ 188,239	\$ 103,798	\$ 106,900	\$ 110,116	\$ 113,423
TOTAL: WATER OPERATIONS FUND (650) EXPENSES		\$ 8,919,055	\$ 9,045,787	\$ 9,703,869	\$10,028,137	\$10,333,246

CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST, continued ¹ :

WATER IMPACT FUND	Basis	2016	2017	2018	2019	2020
SUPPLIES						
CONTRACT SERVICES	2	\$ 69	\$ 71	\$ 73	\$ 75	\$ 78
BANK CARD SERVICE FEES	2	\$ 2,627	\$ 2,706	\$ 2,787	\$ 2,871	\$ 2,957
DEBT						
SERVICE FEES	2	\$ 3,565	\$ 3,672	\$ 3,782	\$ 3,895	\$ 4,012
INTERNAL SERVICES						
GF ADMIN	2	\$ 3,585	\$ 3,711	\$ 3,841	\$ 3,975	\$ 4,114
TRANSFERS						
TRANSFER OUT-207 (GENL PLAN UPDATE)	2	\$ 4,221	\$ 4,221	\$ 4,221	\$ 4,221	\$ 4,221
PROJECTS						
REIMBURSEMENT AGREEMENT	2	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL: WATER IMPACT FUND (651) EXPENSES		\$ 14,067	\$ 14,380	\$ 14,704	\$ 15,037	\$ 15,382

OPERATING EXPENSE FORECAST, continued ¹ :

WATER RATE STABILIZATION FUND	Basis	2016	2017	2018	2019	2020
SUPPLIES						
CONTRACT SERVICES	2	\$ 53	\$ 55	\$ 56	\$ 58	\$ 60
INTERNAL SERVICES						
GF ADMIN	2	\$ 550	\$ 569	\$ 589	\$ 610	\$ 631
TOTAL: WATER RATE STABILIZATION FUND (652) EXPENSES		\$ 603	\$ 624	\$ 645	\$ 668	\$ 691

OPERATING EXPENSE FORECAST, continued ¹ :

WATER SYSTEM REPLACEMENT FUND	Basis	2016	2017	2018	2019	2020
SUPPLIES						
CONTRACT SERVICES	2	\$ 849	\$ 874	\$ 900	\$ 927	\$ 955
DEBT						
SERVICE FEES	2	\$ 690	\$ 710	\$ 732	\$ 754	\$ 776
INTERNAL SERVICES						
GF ADMIN	2	\$ 3,455	\$ 3,576	\$ 3,701	\$ 3,830	\$ 3,964
TRANSFERS						
TRANSFER OUT-WATER CAP.EXPAN.	6	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL: WATER SYSTEM REPLACEMENT FUND (653) EXPENSE		\$ 4,993	\$ 5,160	\$ 5,333	\$ 5,511	\$ 5,696

Grand Total: Operating Expenses		\$ 8,938,718	\$ 9,065,952	\$ 9,724,551	\$10,049,353	\$10,355,014
Grand Total: Operating Expenses (Excluding Impact Fund Expenses)		\$ 8,924,651	\$ 9,051,571	\$ 9,709,848	\$10,034,316	\$10,339,632

CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

Excluded from Analysis ⁶ :

Revenues:	Basis	2016	2017	2018	2019	2020
Water System Replacement Fund						
TRANSFER FROM-650 (WATER OPS)	6	\$ 1,114,706	\$ 1,121,838	\$ 1,120,919	\$ 1,119,213	\$ 1,120,219
Total Revenue Excluded from Analysis:		\$ 1,114,706	\$ 1,121,838	\$ 1,120,919	\$ 1,119,213	\$ 1,120,219
Expenses:	Basis	2016	2017	2018	2019	2020
Water Operations Fund						
Operations						
TRANSFERS						
TRANSFER OUT-653 (WATER REPLACE)	6	\$ 1,114,706	\$ 1,121,838	\$ 1,120,919	\$ 1,119,213	\$ 1,120,219
DEBT						
PRINCIPAL	6	\$ -	\$ -	\$ -	\$ -	\$ -
INTEREST	6	\$ -	\$ -	\$ -	\$ -	\$ -
LEASE PAYMENTS	6	\$ -	\$ -	\$ -	\$ -	\$ -
SERVICE FEES	6	\$ -	\$ -	\$ -	\$ -	\$ -
Utility Billing						
TRANSFERS						
TRANSFER OUT-BOND/DEBT	6	\$ 3,659	\$ 3,659	\$ 3,659	\$ 3,659	\$ 3,659
Water Impact Fund						
DEBT						
PRINCIPAL	6	\$ 238,500	\$ 250,500	\$ 259,500	\$ 268,500	\$ 279,000
INTEREST	6	\$ 239,231	\$ 230,288	\$ 220,894	\$ 211,163	\$ 201,094
ISSUANCE COST	6	\$ -	\$ -	\$ -	\$ -	\$ -
PROJECTS						
CONSTRUCTION ⁵	2	\$ 3,834,000	\$ 1,050,000	\$ 1,140,000	\$ 600,000	\$ 200,000
Water Rate Stabilization Fund						
TRANSFERS						
TRANSFER OUT-650 (WATER OPS)	6	\$ -	\$ -	\$ -	\$ -	\$ -
Water System Replacement Fund						
DEBT						
PRINCIPAL	6	\$ 556,500	\$ 584,500	\$ 605,500	\$ 626,500	\$ 651,000
INTEREST	6	\$ 558,206	\$ 537,338	\$ 515,419	\$ 492,713	\$ 469,219
ISSUANCE COST	6	\$ -	\$ -	\$ -	\$ -	\$ -
TRANSFERS						
TRANSFER OUT-650 (WATER OPS)	6	\$ -	\$ -	\$ -	\$ -	\$ -
PROJECTS						
CONSTRUCTION ⁵	6	\$ 5,148,000	\$ -	\$ -	\$ -	\$ -
Total Expenses Excluded from Analysis:		\$11,692,803	\$ 3,778,122	\$ 3,865,891	\$ 3,321,747	\$ 2,924,191

**CITY OF MORGAN HILL
WATER RATE STUDY
Operating Revenue and Expenses**

EXHIBIT 1

FORECASTING ASSUMPTIONS:

INFLATION FACTORS	2016	2017	2018	2019	2020
1 Customer Growth ⁷	--	2.00%	16.41%	2.00%	2.00%
2 General Cost Inflation	--	3.00%	3.00%	3.00%	3.00%
3 Labor Cost Inflation ⁸	--	5.00%	5.00%	5.00%	5.00%
4 Energy Cost Inflation	--	4.00%	4.00%	4.00%	4.00%
5 Other Cost Inflation	--	3.00%	3.00%	3.00%	3.00%
6 No Escalation	--	0.00%	0.00%	0.00%	0.00%

1. Data source for the FY 2015/16 adopted budget is from the following file: Operating Budget FY 2013-14 to FY 2015-16.xls.
Budget data for FY 2016/17 - FY 2019/20 is forecasted by the City. Inflationary factors are applied to project revenue and expenses in all future years.
2. Interest earnings beyond 2015/16 and internal transfers are calculated in the Financial Plan and Reserve Fund Summary of this model.
3. Per City staff, water sales includes the following conservation rate effective FY 2015/16 and beyond 30%, 30%, 20%, 20%, 20%, with 2% annual growth.
NBS is using a revised FY 2015/16 - 2019/20 rate revenue projection and inflating by customer growth rate in all future years.
File: Revenues Projection Without Rate Increases.xlsx, provided by City Staff 8/12/2015.
4. Initial Groundwater Production costs were provided by City Staff on 8/12/2015, file: Revenues Projection Without Rate Increase.xlsx.
Revised projection is inflated no expected change in consumption (assumes 30% conservation holds).
5. Construction expenses are excluded from this analysis and are handled in Exhibit 2 (CIP).
6. The following revenues and expenses have been excluded from this analysis since they do not represent actual cash expenses,
or are handled in the model elsewhere (i.e. Debt is in Exhibit 3)
7. Customer growth is calculated based on source: Projected Growth Rates.pdf. FY 2020/21 and beyond is set to 1.5% growth annually.
8. Labor cost inflation is set to 5%, per City Staff.

CITY OF MORGAN HILL
WATER RATE STUDY
Capital Improvement Plan Expenditures

EXHIBIT 2

CAPITAL FUNDING SUMMARY

CAPITAL FUNDING FORECAST	Budget	Projected			
Funding Sources:	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Grants	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Impact Fee Reserves	-	1,086,960	1,221,669	665,616	229,682
Use of New SRF Loan Financing	-	-	-	-	-
Use of New Revenue Bond Proceeds	-	-	-	-	-
Use of 2014 Revenue Bond Proceeds ¹	8,982,000	-	652,000	-	-
Use of Capital Rehabilitation & Replacement Reserve	-	-	-	-	-
Rate Revenue	-	-	419,639	1,109,361	1,148,410
Total Sources of Capital Funds	\$ 8,982,000	\$ 1,086,960	\$ 2,293,308	\$ 1,774,977	\$ 1,378,092
Uses of Capital Funds:					
Total Project Costs	\$ 8,982,000	\$ 1,086,960	\$ 2,293,308	\$ 1,774,977	\$ 1,378,092
Capital Funding Surplus (Deficiency)	\$ -	\$ -	\$ -	\$ -	\$ -

CAPITAL IMPROVEMENT PROGRAM

Capital Improvement Program Costs (in Current-Year Dollars):

Capital Improvement Program Projects ³	Fund	2016	2017	2018	2019	2020
601000 New Well / Property Construction	651	\$ 1,963,000	\$ -	\$ 1,140,000	\$ 400,000	\$ -
602000 New Water Reservoirs (new users)	651	\$ 986,000	\$ -	\$ -	\$ -	\$ -
602000 New Water Reservoirs (new users)	653	\$ 1,300,000	\$ -	\$ -	\$ -	\$ -
603000 New Water Mains	651	\$ 474,000	\$ 1,050,000	\$ -	\$ 200,000	\$ 200,000
603000 New Water Mains	653	\$ 949,000	\$ -	\$ -	\$ -	\$ -
607000 Booster Pump Rehabilitation	651	\$ 261,000	\$ -	\$ -	\$ -	\$ -
607000 Booster Pump Rehabilitation	653	\$ 1,133,000	\$ -	\$ -	\$ -	\$ -
608000 Rehabilitate Water Wells	653	\$ 213,000	\$ -	\$ -	\$ -	\$ -
610000 Water Main Replacement	653	\$ 472,000	\$ -	\$ -	\$ -	\$ -
610000 Water Main Replacement	651	\$ 108,000	\$ -	\$ -	\$ -	\$ -
620007 Re-coat Water Reservoir/Tanks	653	\$ 373,000	\$ -	\$ -	\$ -	\$ -
620007 Re-coat Water Reservoir/Tanks	651	\$ 42,000	\$ -	\$ -	\$ -	\$ -
512093 Underground Monterey Utilities	653	\$ 125,000	\$ -	\$ -	\$ -	\$ -
562012 DeWitt Avenue "S" Curve Realignment	653	\$ 483,000	\$ -	\$ -	\$ -	\$ -
623014 Recycled Water MP Supplemental Study	653	\$ 100,000	\$ -	\$ -	\$ -	\$ -
Estimated Future Projects ⁴	653	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Total: Capital Improvement Program Costs (Current-Year Dollars)		\$ 8,982,000	\$ 1,050,000	\$ 2,140,000	\$ 1,600,000	\$ 1,200,000
Total: CIP Costs (Current Year) Paid with Impact Fee Fund	651	\$ 3,834,000	\$ 1,050,000	\$ 1,140,000	\$ 600,000	\$ 200,000
Total: CIP Costs (Current Year) Paid with Replacement Fund	653	\$ 5,148,000	\$ -	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000

**CITY OF MORGAN HILL
WATER RATE STUDY
Capital Improvement Plan Expenditures**

EXHIBIT 2

Capital Improvement Program Costs (in Future-Year Dollars) ⁵ :

Capital Improvement Program Projects ³		Fund	2016	2017	2018	2019	2020
601000	New Well / Property Construction	651	\$ 1,963,000	\$ -	\$ 1,221,669	\$ 443,744	\$ -
602000	New Water Reservoirs (new users)	651	\$ 986,000	\$ -	\$ -	\$ -	\$ -
602000	New Water Reservoirs (new users)	653	\$ 1,300,000	\$ -	\$ -	\$ -	\$ -
603000	New Water Mains	651	\$ 474,000	\$ 1,086,960	\$ -	\$ 221,872	\$ 229,682
603000	New Water Mains	653	\$ 949,000	\$ -	\$ -	\$ -	\$ -
607000	Booster Pump Rehabilitation	651	\$ 261,000	\$ -	\$ -	\$ -	\$ -
607000	Booster Pump Rehabilitation	653	\$ 1,133,000	\$ -	\$ -	\$ -	\$ -
608000	Rehabilitate Water Wells	653	\$ 213,000	\$ -	\$ -	\$ -	\$ -
610000	Water Main Replacement	653	\$ 472,000	\$ -	\$ -	\$ -	\$ -
610000	Water Main Replacement	651	\$ 108,000	\$ -	\$ -	\$ -	\$ -
620007	Re-coat Water Reservoir/Tanks	653	\$ 373,000	\$ -	\$ -	\$ -	\$ -
620007	Re-coat Water Reservoir/Tanks	651	\$ 42,000	\$ -	\$ -	\$ -	\$ -
512093	Underground Monterey Utilities	653	\$ 125,000	\$ -	\$ -	\$ -	\$ -
562012	DeWitt Avenue "S" Curve Realignment	653	\$ 483,000	\$ -	\$ -	\$ -	\$ -
623014	Recycled Water MP Supplemental Study	653	\$ 100,000	\$ -	\$ -	\$ -	\$ -
--	Estimated Future Projects ⁴	653	\$ -	\$ -	\$ 1,071,639	\$ 1,109,361	\$ 1,148,410
Total: Capital Improvement Program Costs (Future-Year Dollars)			\$ 8,982,000	\$ 1,086,960	\$ 2,293,308	\$ 1,774,977	\$ 1,378,092

Total: CIP Costs (Current Year) Paid with Impact Fee Fund 651	651	\$ 3,834,000	\$ 1,086,960	\$ 1,221,669	\$ 665,616	\$ 229,682
Total: CIP Costs (Current Year) Paid with Replacement Fund 653	653	\$ 5,148,000	\$ -	\$ 1,071,639	\$ 1,109,361	\$ 1,148,410

FORECASTING ASSUMPTIONS:

Economic Variables	2016	2017	2018	2019	2020
Annual Construction Cost Inflation, Per Engineering News Record ⁶	0.00%	3.52%	3.52%	3.52%	3.52%
Cumulative Construction Cost Multiplier from 2016	1.00	1.04	1.07	1.11	1.15

1. Use of 2014 Revenue Bond Proceeds is identified by project in the CIP budget provided by City staff; file: CIP 10-Year Water and Sewer.xlsx.
It is assumed those proceeds not spent in 2015/16 are available in 2017/18 for capital projects.
2. The City has Bond funding that will be used for projects listed in FY 2015/16; therefore this years expenditures are not reduced by the listed percentage.
3. Capital Improvement Program projects were provided by City staff via email on 10/12/2015.
4. Estimated future expenditures is \$1 mil./year in 2017/18 - 2019/20, per email from City Staff 10/12/2015. In 2025/26 and beyond, this is the average annual expenditure of all replacement (or rate) funded capital projects for FY 2015/16 through 2024/25.
5. Project costs are inflated by 3.62% per year, Engineering News Record estimates of construction cost inflation.
6. For reference purposes, the annual Construction Cost Inflation percentage is the 10 year average change in the Construction Cost Index for January 2005 to January 2015. Source: Engineering News Record website (<http://enr.construction.com>).

CITY OF MORGAN HILL
WATER RATE STUDY
Debt Service

EXISTING DEBT OBLIGATIONS	Budget	Projected			
Annual Repayment Schedules:	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
2014 Water Refunding & CIP Revenue Bonds, \$21,975,000 ^{1,2}					
Principal Payment	\$ 795,000	\$ 835,000	\$ 865,000	\$ 895,000	\$ 930,000
Interest Payment	797,438	767,625	736,313	703,875	670,313
Subtotal: Annual Debt Service	\$ 1,592,438	\$ 1,602,625	\$ 1,601,313	\$ 1,598,875	\$ 1,600,313
Coverage Requirement(% above annual payment) ²	120%	120%	120%	120%	120%
Reserve Requirement ³	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total: Existing Annual Debt Service	\$ 1,592,438	\$ 1,602,625	\$ 1,601,313	\$ 1,598,875	\$ 1,600,313
Grand Total: Existing Debt Reserve Target	\$ -	\$ -	\$ -	\$ -	\$ -
Allocation of Debt Service Payments to Funding Sources ⁴					
Fund 651 - Impact Fund (41%)	\$ 652,899	\$ 657,076	\$ 656,538	\$ 655,539	\$ 656,128
Fund 653 - Water System Replacement Fund (59%)	\$ 939,538	\$ 945,549	\$ 944,774	\$ 943,336	\$ 944,184

1. The 2014 Water Revenue Bonds were issued to finance 2014 Projects, refinance 1999 Projects and refund the Series 1999 COPs, refinance 2004 Projects and refund the Series 2004 Bonds, & to pay certain costs of issuance (Bond Purchase Agreement, pg. 2).
2. Per the Installment Sales Agreement for the 2014 Revenue Bonds, the City is required to maintain a debt coverage ratio of 1.20 of the maximum annual debt service for these bond issues and all other parity debt. See page 14 of the Installment Sales Agreement (page 74 of the file: 6a. Bond Document - Morgan Hill Water Series 2014.pdf).
3. There is no reserve requirement for this bond issue.
4. Per Staff's direction in an email on 10/7/2015, the debt service payment on the 2014 Water Revenue Bonds is split as follows:
41% to the Water Impact Fund (651) and 59% to the Water System Replacement Fund (653).

CITY OF MORGAN HILL
WATER RATE STUDY
Cost of Service Analysis

Classification of Expenses											
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Zonal	Basis of Classification				
	FY 2015/16	(COM)	(CAP)	(CA)	(FP)	(ZON)	(COM)	(CAP)	(CA)	(FP)	(ZON)
OPERATING EXPENSES											
WATER OPERATIONS FUND, Operations											
SALARIES											
SALARIES - GENERAL	\$ 1,558,185	\$ 467,456	\$ 984,639	\$ 77,909	\$ 28,182	\$ -	30%	63%	5%	2%	0%
SALARIES - PART-TIME TEMP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	30%	63%	5%	2%	0%
EARNED LEAVE LIABILITY	\$ 20,512	\$ 6,154	\$ 12,962	\$ 1,026	\$ 371	\$ -	30%	63%	5%	2%	0%
OVERTIME - GENERAL	\$ 74,263	\$ 22,279	\$ 46,928	\$ 3,713	\$ 1,343	\$ -	30%	63%	5%	2%	0%
UNEMPLOYMENT INSURANCE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	30%	63%	5%	2%	0%
RETIREMENT - GENERAL	\$ 278,043	\$ 83,413	\$ 175,699	\$ 13,902	\$ 5,029	\$ -	30%	63%	5%	2%	0%
DEFERRED COMPENSATION	\$ 31,164	\$ 9,349	\$ 19,693	\$ 1,558	\$ 564	\$ -	30%	63%	5%	2%	0%
GROUP INSURANCE	\$ 275,455	\$ 82,637	\$ 174,064	\$ 13,773	\$ 4,982	\$ -	30%	63%	5%	2%	0%
MEDICARE	\$ 23,718	\$ 7,115	\$ 14,988	\$ 1,186	\$ 429	\$ -	30%	63%	5%	2%	0%
INCOME PROTECTION INS	\$ 14,763	\$ 4,429	\$ 9,329	\$ 738	\$ 267	\$ -	30%	63%	5%	2%	0%
WORKERS COMP	\$ 79,751	\$ 23,925	\$ 50,396	\$ 3,988	\$ 1,442	\$ -	30%	63%	5%	2%	0%
BENEFITS	\$ 3,296	\$ 989	\$ 2,083	\$ 165	\$ 60	\$ -	30%	63%	5%	2%	0%
UNIFORM	\$ 9,548	\$ 2,864	\$ 6,034	\$ 477	\$ 173	\$ -	30%	63%	5%	2%	0%
SUPPLIES											
TAXES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
ELECTRIC	\$ 760,000	\$ 579,230	\$ (0)	\$ -	\$ -	\$ 180,770	76%	0%	0%	0%	24%
GROUNDWATER PRODUCTION	\$ 2,227,267	\$ 556,817	\$ 1,670,450	\$ -	\$ -	\$ -	25%	75%	0%	0%	0%
WATER/SEWER	\$ 2,758	\$ 828	\$ 1,743	\$ 138	\$ 50	\$ -	30%	63%	5%	2%	0%
TELEPHONE	\$ 21,218	\$ 6,365	\$ 13,408	\$ 1,061	\$ 384	\$ -	30%	63%	5%	2%	0%
GASOLINE & OIL	\$ 50,923	\$ 15,277	\$ 32,179	\$ 2,546	\$ 921	\$ -	30%	63%	5%	2%	0%
CONTRACT SERVICES	\$ 369,563	\$ 110,869	\$ 233,532	\$ 18,478	\$ 6,684	\$ -	30%	63%	5%	2%	0%
BANK CARD SERVICE FEES	\$ 438	\$ -	\$ -	\$ 438	\$ -	\$ -	0%	0%	100%	0%	0%
RENTALS - OUTSIDE	\$ 2,652	\$ 796	\$ 1,676	\$ 133	\$ 48	\$ -	30%	63%	5%	2%	0%
STATIONERY & OFFICE SUPPLIES	\$ 9,548	\$ 2,864	\$ 6,034	\$ 477	\$ 173	\$ -	30%	63%	5%	2%	0%
COMPUTER HARDWARE-NON CAPITAL	\$ 4,774	\$ 1,432	\$ 3,017	\$ 239	\$ 86	\$ -	30%	63%	5%	2%	0%
COMPUTER SOFTWARE-NON CAPITAL	\$ 13,261	\$ 3,978	\$ 8,380	\$ 663	\$ 240	\$ -	30%	63%	5%	2%	0%
OTHER SUPPLIES	\$ 213,200	\$ 63,960	\$ 134,724	\$ 10,660	\$ 3,856	\$ -	30%	63%	5%	2%	0%
ADVERTISING	\$ 1,061	\$ 318	\$ 670	\$ 53	\$ 19	\$ -	30%	63%	5%	2%	0%
PHOTOCOPYING	\$ 106	\$ 32	\$ 67	\$ 5	\$ 2	\$ -	30%	63%	5%	2%	0%
POSTAGE & FREIGHT	\$ 6,545	\$ -	\$ -	\$ 6,427	\$ 118	\$ -	0%	0%	98%	2%	0%
PRINTING	\$ 2,122	\$ -	\$ -	\$ 2,083	\$ 38	\$ -	0%	0%	98%	2%	0%
AUTO MILEAGE	\$ 265	\$ 80	\$ 168	\$ 13	\$ 5	\$ -	30%	63%	5%	2%	0%
WATER/SEWER MAINTENANCE SVS	\$ 43,045	\$ 12,914	\$ 27,201	\$ 2,152	\$ 779	\$ -	30%	63%	5%	2%	0%
SMALL TOOLS	\$ 10,609	\$ 3,183	\$ 6,704	\$ 530	\$ 192	\$ -	30%	63%	5%	2%	0%
OTHER EXPENSE	\$ 38,000	\$ 11,400	\$ 24,013	\$ 1,900	\$ 687	\$ -	30%	63%	5%	2%	0%
TRAINING & EDUCATION	\$ 19,096	\$ 5,729	\$ 12,067	\$ 955	\$ 345	\$ -	30%	63%	5%	2%	0%
CONFERENCE & MEETINGS	\$ 3,183	\$ 955	\$ 2,011	\$ 159	\$ 58	\$ -	30%	63%	5%	2%	0%
MEMBERSHIP & DUES	\$ 15,914	\$ 4,774	\$ 10,056	\$ 796	\$ 288	\$ -	30%	63%	5%	2%	0%
SUBSCRIPTION & PUBLICATIONS	\$ 212	\$ 64	\$ 134	\$ 11	\$ 4	\$ -	30%	63%	5%	2%	0%
MAINT - BLDGS/IMPROVEMENTS	\$ 15,914	\$ 4,774	\$ 10,056	\$ 796	\$ 288	\$ -	30%	63%	5%	2%	0%
MAINT - MACHINE/EQUIPMENT	\$ 10,609	\$ 3,183	\$ 6,704	\$ 530	\$ 192	\$ -	30%	63%	5%	2%	0%
MAINT - AUTO/TRUCKS	\$ 26,523	\$ 7,957	\$ 16,760	\$ 1,326	\$ 480	\$ -	30%	63%	5%	2%	0%
SUB-TOTAL: WATER OPERATIONS FUND, Operations	\$ 6,237,504	\$ 2,108,386	\$ 3,718,566	\$ 171,004	\$ 58,777	\$ 180,770	34%	60%	3%	1%	3%

CITY OF MORGAN HILL
WATER RATE STUDY
Cost of Service Analysis

Classification of Expenses											
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Zonal	Basis of Classification				
	FY 2015/16	(COM)	(CAP)	(CA)	(FP)	(ZON)	(COM)	(CAP)	(CA)	(FP)	(ZON)
OPERATING EXPENSES											
<i>WATER OPERATIONS FUND, Operations, continued</i>											
CAPITAL											
MACHINERY/EQUIPMENT	\$ 86,700	\$ -	\$ 86,700	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
COMPUTER EQUIPMENT	\$ 5,253	\$ -	\$ 5,253	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
COMPUTER SOFTWARE	\$ 13,658	\$ -	\$ 13,658	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
METERS	\$ 550,000	\$ 165,000	\$ 291,839	\$ 82,500	\$ 10,661	\$ -	30%	53%	15%	2%	0%
INTERNALSERVICES											
GENERAL LIABILITY INSURANCE	\$ 75,750	\$ 22,725	\$ 47,867	\$ 3,788	\$ 1,370	\$ -	30%	63%	5%	2%	0%
BUILDING MAINT - CURRENT SERVICES	\$ 54,220	\$ 16,266	\$ 34,262	\$ 2,711	\$ 981	\$ -	30%	63%	5%	2%	0%
BUILDING MAINT - FUTURE REPLACEMENT	\$ 2,670	\$ 801	\$ 1,687	\$ 133	\$ 48	\$ -	30%	63%	5%	2%	0%
FLEET REPLACEMENT	\$ 233,540	\$ 70,062	\$ 147,577	\$ 11,677	\$ 4,224	\$ -	30%	63%	5%	2%	0%
INFO SYSTEM SERVICES	\$ 116,855	\$ -	\$ 91,371	\$ 23,371	\$ 2,113	\$ -	0%	78%	20%	2%	0%
GF ADMIN	\$ 205,534	\$ 61,660	\$ 129,880	\$ 10,277	\$ 3,717	\$ -	30%	63%	5%	2%	0%
TRANSFERS											
TRANSFER OUT-010 (GENERAL FUND)	\$ 436,623	\$ -	\$ 428,726	\$ -	\$ 7,897	\$ -	0%	98%	0%	2%	0%
TRANSFER OUT-232 (ENVIRONMENTAL PROGRAMS)	\$ 56,931	\$ -	\$ 55,901	\$ -	\$ 1,030	\$ -	0%	98%	0%	2%	0%
TRANSFER OUT-207 (GENL PLAN UPDATE)	\$ 10,300	\$ -	\$ 10,114	\$ -	\$ 186	\$ -	0%	98%	0%	2%	0%
TRANSFER OUT - EMPLOYEE BENEFITS FUND	\$ 45,385	\$ -	\$ 44,564	\$ -	\$ 821	\$ -	0%	98%	0%	2%	0%
SUB-TOTAL: WATER OPERATIONS FUND, Operations	\$ 1,893,418	\$ 336,514	\$ 1,389,399	\$ 134,457	\$ 33,049	\$ -	18%	73%	7%	2%	0%

CITY OF MORGAN HILL
WATER RATE STUDY
Cost of Service Analysis

Classification of Expenses											
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Zonal	Basis of Classification				
	FY 2015/16	(COM)	(CAP)	(CA)	(FP)	(ZON)	(COM)	(CAP)	(CA)	(FP)	(ZON)
OPERATING EXPENSES, continued											
WATER OPERATIONS FUND, Utility Billing											
SALARIES											
SALARIES - GENERAL	\$ 217,289	\$ -	\$ -	\$ 217,289	\$ -	\$ -	0%	0%	100%	0%	0%
SALARIES - PART-TIME TEMP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
EARNED LEAVE LIABILITY	\$ 4,385	\$ -	\$ -	\$ 4,385	\$ -	\$ -	0%	0%	100%	0%	0%
OVERTIME - GENERAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
UNEMPLOYMENT INSURANCE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
RETIREMENT - GENERAL	\$ 42,198	\$ -	\$ -	\$ 42,198	\$ -	\$ -	0%	0%	100%	0%	0%
DEFERRED COMPENSATION	\$ 3,212	\$ -	\$ -	\$ 3,212	\$ -	\$ -	0%	0%	100%	0%	0%
GROUP INSURANCE	\$ 51,825	\$ -	\$ -	\$ 51,825	\$ -	\$ -	0%	0%	100%	0%	0%
MEDICARE	\$ 3,170	\$ -	\$ -	\$ 3,170	\$ -	\$ -	0%	0%	100%	0%	0%
INCOME PROTECTION INS	\$ 2,345	\$ -	\$ -	\$ 2,345	\$ -	\$ -	0%	0%	100%	0%	0%
WORKERS COMP	\$ 10,864	\$ -	\$ -	\$ 10,864	\$ -	\$ -	0%	0%	100%	0%	0%
BENEFITS	\$ 1,302	\$ -	\$ -	\$ 1,302	\$ -	\$ -	0%	0%	100%	0%	0%
CONTRACT LABOR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
SUPPLIES											
TELEPHONE	\$ 5,305	\$ -	\$ -	\$ 5,305	\$ -	\$ -	0%	0%	100%	0%	0%
CONTRACT SERVICES	\$ 50,071	\$ -	\$ -	\$ 50,071	\$ -	\$ -	0%	0%	100%	0%	0%
BANK CARD SERVICE FEES	\$ 59,489	\$ -	\$ -	\$ 59,489	\$ -	\$ -	0%	0%	100%	0%	0%
STATIONERY & OFFICE SUPPLIES	\$ 1,273	\$ -	\$ -	\$ 1,273	\$ -	\$ -	0%	0%	100%	0%	0%
COMPUTER HARDWARE-NON CAPITAL	\$ 1,000	\$ -	\$ -	\$ 1,000	\$ -	\$ -	0%	0%	100%	0%	0%
OTHER SUPPLIES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
ADVERTISING	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
PHOTOCOPYING	\$ 115	\$ -	\$ -	\$ 115	\$ -	\$ -	0%	0%	100%	0%	0%
POSTAGE & FREIGHT	\$ 53,045	\$ -	\$ -	\$ 53,045	\$ -	\$ -	0%	0%	100%	0%	0%
PRINTING	\$ 849	\$ -	\$ -	\$ 849	\$ -	\$ -	0%	0%	100%	0%	0%
AUTO MILEAGE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
TRAINING & EDUCATION	\$ 743	\$ -	\$ -	\$ 743	\$ -	\$ -	0%	0%	100%	0%	0%
SUBSCRIPTION & PUBLICATIONS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	100%	0%	0%
INTERNAL SERVICES											
GENERAL LIABILITY INSURANCE	\$ 5,769	\$ -	\$ -	\$ 5,769	\$ -	\$ -	0%	0%	100%	0%	0%
BUILDING MAINT - CURRENT SERVICES	\$ 6,608	\$ -	\$ -	\$ 6,608	\$ -	\$ -	0%	0%	100%	0%	0%
BUILDING MAINT - FUTURE REPLACEMENT	\$ 1,096	\$ -	\$ -	\$ 1,096	\$ -	\$ -	0%	0%	100%	0%	0%
INFO SYSTEM SERVICES	\$ 25,230	\$ -	\$ -	\$ 25,230	\$ -	\$ -	0%	0%	100%	0%	0%
GF ADMIN	\$ 45,673	\$ -	\$ -	\$ 45,673	\$ -	\$ -	0%	0%	100%	0%	0%
TRANSFERS											
TRANSFER OUT - EMPLOYEE BENEFITS FUND	\$ 7,039	\$ -	\$ -	\$ 7,039	\$ -	\$ -	0%	0%	100%	0%	0%
TOTAL: WATER OPERATIONS FUND, Utility Billing	\$ 599,894	\$ -	\$ -	\$ 599,894	\$ -	\$ -	0%	0%	100%	0%	0%

CITY OF MORGAN HILL
WATER RATE STUDY
Cost of Service Analysis

Classification of Expenses											
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Zonal	Basis of Classification				
	FY 2015/16	(COM)	(CAP)	(CA)	(FP)	(ZON)	(COM)	(CAP)	(CA)	(FP)	(ZON)
OPERATING EXPENSES, continued											
WATER OPERATIONS FUND, Water Conservation											
SALARIES											
SALARIES - GENERAL	\$ 28,017	\$ 28,017	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
SALARIES - PART-TIME TEMP	\$ 10,640	\$ 10,640	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
EARNED LEAVE LIABILITY	\$ 1,902	\$ 1,902	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
UNEMPLOYMENT INSURANCE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
RETIREMENT - GENERAL	\$ 4,999	\$ 4,999	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
DEFERRED COMPENSATION	\$ 475	\$ 475	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
GROUP INSURANCE	\$ 2,651	\$ 2,651	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
MEDICARE	\$ 565	\$ 565	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
INCOME PROTECTION INS	\$ 231	\$ 231	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
WORKERS COMP	\$ 1,665	\$ 1,665	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
BENEFITS	\$ 327	\$ 327	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
SUPPLIES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
TELEPHONE	\$ 127	\$ 127	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
CONTRACT SERVICES	\$ 15,071	\$ 15,071	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
POSTAGE & FREIGHT	\$ 10,424	\$ 10,424	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
PRINTING	\$ 21,273	\$ 21,273	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
AUTO MILEAGE	\$ 712	\$ 712	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
OTHER EXPENSE	\$ 82,436	\$ 82,436	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
TRAINING & EDUCATION	\$ 424	\$ 424	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
CONFERENCE & MEETINGS	\$ 212	\$ 212	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
INTERNAL SERVICES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
GENERAL LIABILITY INSURANCE	\$ 420	\$ 420	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
GF ADMIN	\$ 5,154	\$ 5,154	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
TRANSFERS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
TRANSFER OUT - EMPLOYEE BENEFITS FUND	\$ 512	\$ 512	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%
TOTAL: WATER OPERATIONS FUND, Water Conservation	\$ 188,239	\$ 188,239	\$ -	\$ -	\$ -	\$ -	100%	0%	0%	0%	0%

CITY OF MORGAN HILL
WATER RATE STUDY
Cost of Service Analysis

Classification of Expenses											
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Zonal	Basis of Classification				
	FY 2015/16	(COM)	(CAP)	(CA)	(FP)	(ZON)	(COM)	(CAP)	(CA)	(FP)	(ZON)
OPERATING EXPENSES, continued											
WATER RATE STABILIZATION FUND											
SUPPLIES											
CONTRACT SERVICES	\$ 53	\$ 16	\$ 33	\$ 3	\$ 1	\$ -	30%	63%	5%	2%	0%
INTERNAL SERVICES											
GF ADMIN	\$ 550	\$ 165	\$ 346	\$ 27	\$ 11	\$ -	30%	63%	5%	2%	0%
TOTAL: WATER RATE STABILIZATION FUND (652) EXPENSES	\$ 603	\$ 181	\$ 380	\$ 30	\$ 12	\$ -	30%	63%	5%	2%	0%

Classification of Expenses											
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Zonal	Basis of Classification				
	FY 2015/16	(COM)	(CAP)	(CA)	(FP)	(ZON)	(COM)	(CAP)	(CA)	(FP)	(ZON)
OPERATING EXPENSES, continued											
WATER SYSTEM REPLACEMENT FUND											
SUPPLIES											
CONTRACT SERVICES	\$ 849	\$ 255	\$ 535	\$ 42	\$ 17	\$ -	30%	63%	5%	2%	0%
DEBT											
SERVICE FEES	\$ 690	\$ 207	\$ 434	\$ 34	\$ 14	\$ -	30%	63%	5%	2%	0%
INTERNAL SERVICES											
GF ADMIN	\$ 3,455	\$ 1,036	\$ 2,177	\$ 173	\$ 69	\$ -	30%	63%	5%	2%	0%
TRANSFERS											
TRANSFER OUT-WATER CAP.EXPAN.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	30%	63%	5%	2%	0%
TOTAL: WATER SYSTEM REPLACEMENT FUND (653) EXPENSES	\$ 4,993	\$ 1,498	\$ 3,146	\$ 250	\$ 100	\$ -	30%	63%	5%	2%	0%

Grand Total: Operating Expenses	\$ 8,924,651	\$ 2,634,818	\$ 5,111,491	\$ 905,635	\$ 91,937	\$ 180,770	30%	57%	10%	1%	2%
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CITY OF MORGAN HILL
WATER RATE STUDY
Cost of Service Analysis

Classification of Expenses, continued											
Budget Categories	Total Revenue Requirements	Commodity	Capacity	Customer	Fire Protection	Zonal	Basis of Classification				
	FY 2015/16	(COM)	(CAP)	(CA)	(FP)	(ZON)	(COM)	(CAP)	(CA)	(FP)	(ZON)
DEBT SERVICE PAYMENTS											
2014 Water Refunding & CIP Revenue Bonds, \$21,975,000	\$ 939,538	\$ -	\$ 939,538	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
New Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
TOTAL: DEBT SERVICE PAYMENTS	\$ 939,538	\$ -	\$ 939,538	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
Capital Expenditures											
Rate Funded Capital Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	100%	0%	0%	0%
TOTAL REVENUE REQUIREMENTS	\$ 9,864,189	\$ 2,634,818	\$ 6,051,029	\$ 905,635	\$ 91,937	\$ 180,770	27%	61%	9%	1%	2%
Less: Non-Rate Revenues											
RENT & CONCESSIONS	\$ (70,147)	\$ (18,737)	\$ (43,031)	\$ (6,440)	\$ (654)	\$ -	27%	61%	9%	1%	0%
FRONT FOOTAGE/OFFSITE	\$ (52,500)	\$ (14,023)	\$ (32,205)	\$ (4,820)	\$ (489)	\$ -	27%	61%	9%	1%	0%
PERCHLORATE SURCHARGE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
UB COLLECTIONS	\$ (2,060)	\$ -	\$ -	\$ (2,060)	\$ -	\$ -	0%	0%	100%	0%	0%
METER INSTALL & SERVICE	\$ (215,325)	\$ (64,598)	\$ (118,429)	\$ (32,299)	\$ -	\$ -	30%	55%	15%	0%	0%
FIRE HYDRANT CHARGE	\$ (50,000)	\$ (13,355)	\$ (30,672)	\$ (4,591)	\$ (466)	\$ -	27%	61%	9%	1%	0%
OTHER REVENUE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
REIMBURSEMENT OF EXPENSES	\$ (20,600)	\$ (5,502)	\$ (12,637)	\$ (1,891)	\$ (192)	\$ -	27%	61%	9%	1%	0%
MISC. SALES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
SURPLUS SALES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
MISC. REVENUE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
ANNUAL BACKFLOW INSPECTION	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
UTILITY ACCOUNT SET-UP	\$ (56,650)	\$ -	\$ -	\$ (56,650)	\$ -	\$ -	0%	0%	100%	0%	0%
CONSTRUCTION BACKFLOW INSPECTION	\$ (412)	\$ (110)	\$ (253)	\$ (38)	\$ (4)	\$ -	27%	61%	9%	1%	0%
CONST.INSPECT.-BACKFLOW	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
UTILITY BILL DELINQ CHR	\$ (20,600)	\$ -	\$ -	\$ (20,600)	\$ -	\$ -	0%	0%	100%	0%	0%
DELINQUENT BILL CHARGE	\$ (114,493)	\$ -	\$ -	\$ (114,493)	\$ -	\$ -	0%	0%	100%	0%	0%
UTILITY SERVICE CALL	\$ (59,508)	\$ -	\$ -	\$ (59,508)	\$ -	\$ -	0%	0%	100%	0%	0%
CHGS-CURR/PLANS & SPECS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
TRANSFER FROM-640 (SEWER OPS)	\$ (316,409)	\$ (84,516)	\$ (194,096)	\$ (29,050)	\$ (2,949)	\$ -	27%	61%	9%	1%	0%
TRANSFER FROM-653 (WATER CIP) 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
TRANSFER FROM-652 (WATER STABL) 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
Water System Replacement Fund (653)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
OTHER REVENUE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
BOND PROCEEDS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
CAPITAL CONTRIBUTIONS	\$ (133,000)	\$ (35,526)	\$ (81,587)	\$ (12,211)	\$ (1,240)	\$ -	27%	61%	9%	1%	0%
CHGS-CURR/PLANS & SPECS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
TRANSFER FROM-650 (WATER OPS) 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
SPECIAL DEPOSITS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	27%	61%	9%	1%	0%
Interest Income	\$ (47,138)	\$ (12,591)	\$ (28,916)	\$ (4,328)	\$ (439)	\$ -	27%	61%	9%	1%	0%
NET REVENUE REQUIREMENTS	\$ 8,705,347	\$ 2,385,860	\$ 5,509,204	\$ 556,657	\$ 85,504	\$ 180,770					
Allocation of Revenue Requirements	100.0%	27.4%	63.3%	6.4%	1.0%	2.1%					

CITY OF MORGAN HILL
WATER RATE STUDY
Cost of Service Analysis

Classification of Expenses, continued						
Adjustments to Classification of Expenses						
Adjustment for Current Rate Level:	Total	(COM)	(CAP)	(CA)	(FP)	(ZON)
Test Year (FY 2015/16) Target Rate Rev. After Rate Increases	\$8,488,540					
Projected Rate Revenue at Current Rates	\$7,329,555					
Test Year (FY 2015/16) Projected Rate Adjustment	9%					
Net Revenue Requirements	\$ 8,488,540	\$ 2,326,440	\$ 5,356,707	\$ 541,249	\$ 83,375	\$ 180,770
<i>Percent of Revenue</i>	<i>100.0%</i>	<i>27.4%</i>	<i>63.1%</i>	<i>6.4%</i>	<i>1.0%</i>	<i>2.1%</i>

Cost-of-Service Allocation to Fixed vs. Variable Charges	
Fixed Charges	73%
Variable Charges	27%

Rate Alternative #1 Net Revenue Requirements of 50% Fixed / 50% Variable	Total Rate Revenue Requirement s FY 2015/16	Commodity Related Costs	Capacity Related Costs	Customer Related Costs	Fire Protection Related Costs	Zonal Related Costs
Rate-Design Adjustments to Fixed/Variable %	100.0%	48%	45%	4%	1%	2%
Rate-Design Adjustments to Fixed/Variable (\$)	\$8,488,540	\$4,063,500	\$3,779,055	\$381,841	\$83,375	\$180,770

Variable (Volumetric Rates)	50.0%
Fixed Charges	50.0%

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis

Development of the BASE CAPACITY Allocation Factor					
Customer Class	FY 2014/15 Volume (hcf) ¹	Percent of Total Volume	% Adjustment for Conservation ²	Estimated Volume Adjusted for	Percent of Total Volume
Residential SF- Inside	1,551,464	57.2%	20%	1,241,172	57.2%
Residential SF- Outside	49,920	1.8%	20%	39,936	1.8%
Residential - Multi-Family - Inside	308,735	11.4%	20%	246,988	11.4%
Commercial - Inside	801,354	29.6%	20%	641,084	29.6%
Commercial - Outside	68	0.0%	20%	54	0.0%
Subtotal	2,711,541	100.0%	--	2,169,235	100.0%
Fire	45	0.0%	0%	-	0.0%
Grand Total	2,711,586	100.0%	20%	2,169,235	100.0%

1. Consumption data source: Billed Consumption Report by Month spreadsheets.

2. Additional conservation expected from FY 2014/15. Based on a 38% conservation of CY 2013 consumption (3.5 mil hcf), per the State's August 27, 2015 water supplier report source of 2013 consumption: Item10_Monthly Sales By Class 2013_2014_2015.xlsx

Commodity Related Costs: These costs are associated with the total consumption (flow) of water over a specified period of time (e.g. annual).

Development of the CAPACITY (MAX MONTH) Allocation Factors				
Customer Class	Average Monthly Use (hcf)	Peak Monthly Use (hcf) ¹	Peak Month Factor	Max Month Capacity Factor
Residential SF- Inside	129,289	234,405	1.81	58.0%
Residential SF- Outside	4,160	6,690	1.61	1.7%
Residential - Multi-Family - Inside	25,728	41,773	1.62	10.3%
Commercial - Inside	66,780	121,307	1.82	30.0%
Commercial - Outside	6	16	2.82	0.0%
Subtotal	225,962	404,191	1.79	100.0%
Fire	4	21	5.60	0.0%
Grand Total	225,966	404,212	1.79	100.0%

1. Based on peak monthly data (peak day data not available).

Capacity Related Costs: Costs associated with the maximum demand required at one point in time or the maximum size of facilities required to meet this demand.

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis

Development of the Customer Allocation Factor		
Customer Class	Number of Meters ¹	Percent of Total
Residential SF- Inside	9,370	69.3%
Residential SF- Outside	312	2.3%
Residential - Multi-Family - Inside	1,996	14.8%
Commercial - Inside	1,573	11.6%
Commercial - Outside	3	0.0%
Subtotal	13,254	98.1%
Fire	262	1.9%
Grand Total	13,516	100.0%

1. Number of meters is from the Billed Consumption Report by Month spreadsheets for June 2015.

Customer Related Costs : Costs associated with having a customer on the water system. These costs vary with the addition or deletion of customers on the system. Examples: Meter-reading, Postage and billing.

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

Meter Equivalency Factors Used in Fixed Charge Calculations:

Meter Size	Standard Meters			Fire Service Meters	
	Meter Capacity (gpm) ¹	Residential Equivalency to 1-inch ²	Commercial Equivalency to 1-inch	Meter Capacity (gpm) ³	Equivalency to 1-inch
	<u>Displacement Meters</u>			<u>Displacement Meters</u>	
5/8 inch	20	1.00	1.00	20	0.40
3/4 inch	30	1.00	1.00	30	0.60
1 inch	50	1.00	1.00	50	1.00
1.5 inch	100	2.00	2.00	100	2.00
2 inch	160	3.20	3.20	160	3.20
	<u>Compound Class I Meters</u>			<u>Fire Service Type I & II</u>	
3 inch	320	6.40	6.40	350	7.00
4 inch	500	10.00	10.00	700	14.00
6 inch	1,000	20.00	20.00	1,600	32.00
8 inch	1,600	32.00	32.00	2,800	56.00
	<u>Turbine Class II Meters</u>				
10 inch	4,200	84.00	84.00	4,400	88.00

1. Per AWWA M-1, Table B-1.

2. Residential meters 5/8" - 1" are all set to an equivalency factor of 1.0, per direction from City Staff.

3. Per AWWA M-6, Table 5-3.

Classification Components	Cost-of-Service Net Revenue Requirements (Test Year 2015-16)		Proposed Rate Adjusted Net Revenue Requirements (2015-16) 50% Fixed / 50% Variable	
Commodity-Related Costs	\$ 2,326,440	27%	\$ 4,063,500	48%
Capacity-Related Costs	\$ 5,356,707	63%	\$ 3,779,055	45%
Customer-Related Costs	\$ 541,249	6%	\$ 381,841	4%
Fire Protection-Related Costs	\$ 83,375	1%	\$ 83,375	1%
Subtotal Revenue Requirement	\$ 8,307,770	98%	\$ 8,307,770	98%
Zonal Related Costs ¹	\$ 180,770	2%	\$ 180,770	2%
Net Total Revenue Requirement	\$ 8,488,540	100%	\$ 8,488,540	100%

1. Zonal Related Costs are recovered via the zonal charge and are not included in this rate revenue calculation.

Unadjusted Net Rev. Req'ts.

30% total variable

70% total fixed

100%

Adjusted Net Rev. Req'ts.

50% total variable

50% total fixed

100%

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

Allocation of FY 2015/16 Adjusted Net Revenue Requirements: *Net Revenue Requirements (50% Fixed / 50% Variable)*

Customer Class	Cost Classification Components				Cost of Service Net Revenue Reqts	% of COS Net Revenue Reqts
	Commodity	Capacity	Customer	Fire Protection		
Residential	\$ 2,862,494	\$ 2,644,724	\$ 329,915	\$ -	\$ 5,837,133	70%
Non-Residential	\$ 1,201,007	\$ 1,134,331	\$ 44,524	\$ -	\$ 2,379,861	29%
Fire	\$ -	\$ -	\$ 7,402	\$ 83,375	\$ 90,777	1%
Grand Total	\$ 4,063,500	\$ 3,779,055	\$ 381,841	\$ 83,375	\$ 8,307,770	100%
	49%	45%	5%	1%	100%	
	49%		51%			

CALCULATION OF MONTHLY RESIDENTIAL FIXED METER SERVICE CHARGES FOR FY 2015/16:

Net Revenue Requirements (50% Fixed / 50% Variable)

Number of Meters by Class and Size ¹	FY2015-16										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Residential	1,454	1,599	8,461	98	52	-	9	5	-	-	11,678
<i>Hydraulic Capacity Factor²</i>	1.00	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	
Total Equivalent Meters	1,454	1,599	8,461	196	166	-	90	100	-	-	12,066
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) ³	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	
Capacity Costs (\$/Acct/mo.) ⁴	18.27	18.27	18.27	36.53	58.45	116.90	182.65	365.30	584.48	1,534.27	
Total Monthly Meter Charge	\$20.62	\$20.62	\$20.62	\$38.88	\$60.80	\$119.25	\$185.00	\$367.66	\$586.84	\$1,536.62	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 329,915										
Capacity Costs	\$ 2,644,724										
Total Fixed Meter Costs	\$ 2,974,639										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 41,077	\$ 45,173	\$ 239,032	\$ 2,769	\$ 1,469	\$ -	\$ 254	\$ 141	\$ -	\$ -	\$ 329,915
Capacity Charges	318,689	350,470	1,854,489	42,959	36,472	-	19,726	21,918	-	-	\$ 2,644,724
Total Revenue from Mo. Meter Charges	\$ 359,766	\$ 395,644	\$ 2,093,521	\$ 45,728	\$ 37,941	\$ -	\$ 19,981	\$ 22,059	\$ -	\$ -	\$ 2,974,639

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY NON-RESIDENTIAL FIXED METER SERVICE CHARGES FOR FY 2015/16:

Net Revenue Requirements (50% Fixed / 50% Variable)

Number of Meters by Class and Size ¹	FY2015-16										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Non - Residential	61	99	568	363	441	13	30	1	-	-	1,576
<i>Hydraulic Capacity Factor²</i>	1.00	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	
Total Equivalent Meters	61	99	568	726	1,411	83	300	20	-	-	3,268
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) ³	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	
Capacity Costs (\$/Acct/mo.) ⁴	28.92	28.92	28.92	57.84	92.55	185.10	289.22	578.43	925.49	2,429.42	
Total Monthly Meter Charge	\$31.28	\$31.28	\$31.28	\$60.20	\$94.90	\$187.45	\$291.57	\$580.79	\$927.85	\$2,431.77	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 44,524										
Capacity Costs	\$ 1,134,331										
Total Fixed Meter Costs	\$ 1,178,854										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 1,723	\$ 2,797	\$ 16,047	\$ 10,255	\$ 12,459	\$ 367	\$ 848	\$ 28	\$ -	\$ -	\$ 44,524
Capacity Charges	21,171	34,359	197,130	251,966	489,771	28,875	104,118	6,941	-	-	\$ 1,134,331
Total Revenue from Mo. Meter Charges	\$ 22,894	\$ 37,156	\$ 213,177	\$ 262,221	\$ 502,230	\$ 29,243	\$ 104,966	\$ 6,969	\$ -	\$ -	\$ 1,178,854

1. Number of meters by size and class is per the City of Morgan Hill's utility billing data as of July 2015 in the Billed Consumption Report by Month spreadsheets.
2. Source: AWWA Manual M1, "Principles of Water Rates, Fees, and Charges", Table B-1. Assumes displacement meters for 5/8 - 2 inch meters, Compound Class I for 3 - 8 inch meters, and Turbine Class II for 10 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES COMMERCIAL FIRE METERS FOR FY 2015/16:

Net Revenue Requirements (50% Fixed / 50% Variable)

Number of Meters by Class and Size ¹	FY2015-16										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Fire Meters	-	-	-	-	-	-	64	126	67	5	262
<i>Hydraulic Capacity Factor²</i>	0.40	0.60	1.00	2.00	3.20	7.00	14.00	32.00	56.00	88.00	
Total Equivalent Meters	-	-	-	-	-	-	896	4,032	3,752	440	9,120
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) ³	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	\$2.35	
Fire Protection Costs (\$/Acct/mo.) ⁴	\$0.30	\$0.46	\$0.76	\$1.52	\$2.44	\$5.33	\$10.67	\$24.38	\$42.66	\$67.04	
Total Monthly Meter Charge	\$2.66	\$2.81	\$3.12	\$3.88	\$4.79	\$7.69	\$13.02	\$26.73	\$45.02	\$69.40	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 7,402										
Fire Protection Costs	\$ 83,375										
Total Fixed Meter Costs	\$ 83,375										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,808	\$ 3,560	\$ 1,893	\$ 141	\$ 7,402
Fire Protection Costs	-	-	-	-	-	-	8,191	36,860	34,301	4,022	\$ 83,375
Total Revenue from Mo. Meter Charges	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,999	\$ 40,420	\$ 36,194	\$ 4,164	\$ 90,777

1. Number of meters by size and class is per the City of Morgan Hill's utility billing data as of July 2015 in the Billed Consumption Report by Month spreadsheets.
2. Source: AWWA Manual M6, "Water Meters - Selection, Installation, Testing and Maintenance", Table 5-3. Assumes Displacement Meters for 5/8 - 2 inch meters and Fire Service Type I & II for 3 - 10 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Fire Protection costs are allocated by meter size and the hydraulic capacity of the meter.

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

Projected Revenue From Fixed Charges by Customer Class **Net Revenue Requirements (50% Fixed / 50% Variable)**

Number of Meters by Class and Size ¹	FY2015-16										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Residential	1,454	1,599	8,461	98	52	-	9	5	-	-	11,678
Non-Residential	61	99	568	363	441	13	30	1	-	-	1,576
Fire Meters	-	-	-	-	-	-	64	126	67	5	262
Total Meters/Accounts	1,515	1,698	9,029	461	493	13	103	132	67	5	13,516
<i>Residential Fixed Charges by Meter Size</i>	<i>\$20.62</i>	<i>\$20.62</i>	<i>\$20.62</i>	<i>\$38.88</i>	<i>\$60.80</i>	<i>\$119.25</i>	<i>\$185.00</i>	<i>\$367.66</i>	<i>\$586.84</i>	<i>\$1,536.62</i>	
<i>Non-Residential Fixed Charges by Meter</i>	<i>\$31.28</i>	<i>\$31.28</i>	<i>\$31.28</i>	<i>\$60.20</i>	<i>\$94.90</i>	<i>\$187.45</i>	<i>\$291.57</i>	<i>\$580.79</i>	<i>\$927.85</i>	<i>\$2,431.77</i>	
<i>Fixed Charges - Fire Meters Only</i>	<i>\$2.66</i>	<i>\$2.81</i>	<i>\$3.12</i>	<i>\$3.88</i>	<i>\$4.79</i>	<i>\$7.69</i>	<i>\$13.02</i>	<i>\$26.73</i>	<i>\$45.02</i>	<i>\$69.40</i>	
Revenue from Fixed Charges											
Residential	\$ 359,766	\$ 395,644	\$ 2,093,521	\$ 45,728	\$ 37,941	\$ -	\$ 19,981	\$ 22,059	\$ -	\$ -	\$ 2,974,639
Non-Residential	\$ 22,894	\$ 37,156	\$ 213,177	\$ 262,221	\$ 502,230	\$ 29,243	\$ 104,966	\$ 6,969	\$ -	\$ -	\$ 1,178,854
Fire	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,999	\$ 40,420	\$ 36,194	\$ 4,164	\$ 90,777
Total Revenue - Fixed Charges											\$ 4,244,270

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

Proposed Rate - Revenue Requirements (Allocation - 50% Fixed / 50% Variable) - Fiscal Year 2017/18

Classification Components	Adjusted Net Revenue Requirements (2017-18) ¹	
Commodity-Related Costs	\$ 5,549,962	48%
Capacity-Related Costs	\$ 5,161,464	45%
Customer-Related Costs	\$ 521,521	4%
Fire Protection-Related Costs	\$ 113,874	1%
Subtotal Revenue Requirement	\$ 11,346,822	98%
Zonal Related Costs ²	\$ 246,897	2%
Net Total Revenue Requirement	\$ 11,593,719	100%

Adjusted Net Rev. Req'ts.
50% total variable
50% total fixed
100%

1. Due to customer growth, rates need to be re-calculated.

2. Zonal Related Costs are recovered via the zonal charge and are not included in this rate revenue calculation.

Allocation of FY 2017/18 Adjusted Net Revenue Requirements: Net Revenue Requirements (50% Fixed / 50% Variable)

Customer Class	Cost Classification Components				Cost of Service Net Revenue	% of COS Net Revenue Reqts
	Commodity	Capacity	Customer	Fire Protection		
Residential	\$ 3,909,618	\$ 3,612,186	\$ 450,601	\$ -	\$ 7,972,405	70%
Non-Residential	\$ 1,640,345	\$ 1,549,278	\$ 60,811	\$ -	\$ 3,250,434	29%
Fire	\$ -	\$ -	\$ 10,109	\$ 113,874	\$ 123,983	1%
Grand Total	\$ 5,549,962	\$ 5,161,464	\$ 521,521	\$ 113,874	\$ 11,346,822	100%
	49%	45%	5%	1%	100%	
	49%		51%			

CALCULATION OF MONTHLY RESIDENTIAL FIXED METER SERVICE CHARGES FOR FY 2017/18:

Net Revenue Requirements (50% Fixed / 50% Variable)

Number of Meters by Class and Size ¹	Projected FY 2017-18										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Residential	1,513	1,664	8,803	102	54	-	9	5	-	-	12,150
<i>Hydraulic Capacity Factor ²</i>	1.00	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	
Total Equivalent Meters	1,513	1,664	8,803	204	173	-	94	104	-	-	12,554
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) ³	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	
Capacity Costs (\$/Acct/mo.) ⁴	23.98	23.98	23.98	47.96	76.73	153.46	239.78	479.56	767.29	2,014.14	
Total Monthly Meter Charge	\$27.07	\$27.07	\$27.07	\$51.05	\$79.82	\$156.55	\$242.87	\$482.65	\$770.38	\$2,017.23	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 450,601										
Capacity Costs	\$ 3,612,186										
Total Fixed Meter Costs	\$ 4,062,787										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 56,103	\$ 61,698	\$ 326,472	\$ 3,781	\$ 2,006	\$ -	\$ 347	\$ 193	\$ -	\$ -	\$ 450,601
Capacity Charges	435,268	478,675	2,532,877	58,674	49,813	-	26,942	29,936	-	-	\$ 3,612,186
Total Revenue from Mo. Meter Charges	\$ 491,371	\$ 540,373	\$ 2,859,348	\$ 62,456	\$ 51,820	\$ -	\$ 27,290	\$ 30,129	\$ -	\$ -	\$ 4,062,787

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

CALCULATION OF MONTHLY NON-RESIDENTIAL FIXED METER SERVICE CHARGES FOR FY 2017/18:

Net Revenue Requirements (50% Fixed / 50% Variable)

Number of Meters by Class and Size ¹	Projected FY 2017-18										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Non - Residential	63	103	591	378	459	14	31	1	-	-	1,640
<i>Hydraulic Capacity Factor²</i>	1.00	1.00	1.00	2.00	3.20	6.40	10.00	20.00	32.00	84.00	
Total Equivalent Meters	63	103	591	755	1,468	87	312	21	-	-	3,400
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) ³	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	
Capacity Costs (\$/Acct/mo.) ⁴	37.97	37.97	37.97	75.94	121.50	242.99	379.68	759.35	1,214.96	3,189.27	
Total Monthly Meter Charge	\$41.06	\$41.06	\$41.06	\$79.03	\$124.59	\$246.08	\$382.77	\$762.44	\$1,218.05	\$3,192.37	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 60,811										
Capacity Costs	\$ 1,549,278										
Total Fixed Meter Costs	\$ 1,610,089										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ 2,354	\$ 3,820	\$ 21,917	\$ 14,007	\$ 17,016	\$ 502	\$ 1,158	\$ 39	\$ -	\$ -	\$ 60,811
Capacity Charges	28,915	46,928	269,242	344,137	668,933	39,438	142,205	9,480	-	-	\$ 1,549,278
Total Revenue from Mo. Meter Charges	\$ 31,269	\$ 50,748	\$ 291,158	\$ 358,143	\$ 685,949	\$ 39,940	\$ 143,363	\$ 9,519	\$ -	\$ -	\$ 1,610,089

1. Number of meters by size and class increased by the expected growth in connections to the water system.
2. Source: AWWA Manual M1, "Principles of Water Rates, Fees, and Charges", Table B-1. Assumes displacement meters for 5/8 - 2 inch meters, Compound Class I for 3 - 8 inch meters, and Turbine Class II for 10 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF MONTHLY FIXED METER SERVICE CHARGES COMMERCIAL FIRE METERS FOR FY 2017/18:

Net Revenue Requirements (50% Fixed / 50% Variable)

Number of Meters by Class and Size ¹	Projected FY 2017-18										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Fire Meters	-	-	-	-	-	-	67	131	70	5	273
<i>Hydraulic Capacity Factor²</i>	0.40	0.60	1.00	2.00	3.20	7.00	14.00	32.00	56.00	88.00	
Total Equivalent Meters	-	-	-	-	-	-	932	4,195	3,904	458	9,488
Monthly Fixed Service Charges											
Customer Costs (\$/Acct/mo.) ³	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	\$3.09	
Fire Protection Costs (\$/Acct/mo.) ⁴	\$0.40	\$0.60	\$1.00	\$2.00	\$3.20	\$7.00	\$14.00	\$32.00	\$56.01	\$88.01	
Total Monthly Meter Charge	\$3.49	\$3.69	\$4.09	\$5.09	\$6.29	\$10.09	\$17.09	\$35.09	\$59.10	\$91.10	
Annual Fixed Costs Allocated to Monthly Meter Charges											
Customer Costs	\$ 10,109										
Fire Protection Costs	\$ 113,874										
Total Fixed Meter Costs	\$ 113,874										
Annual Revenue from Monthly Meter Charges											
Customer Charges	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,469	\$ 4,862	\$ 2,585	\$ 193	\$ 10,109
Fire Protection Costs	-	-	-	-	-	-	11,188	50,344	46,848	5,494	113,874
Total Revenue from Mo. Meter Charges	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,657	\$ 55,206	\$ 49,433	\$ 5,687	\$ 123,983

1. Number of meters by size and class increased by the expected growth in connections to the water system.
2. Source: AWWA Manual M6, "Water Meters - Selection, Installation, Testing and Maintenance", Table 5-3. Assumes Displacement Meters for 5/8 - 2 inch meters and Fire Service Type I & II for 3 - 10 inch meters.
3. Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.
4. Fire Protection costs are allocated by meter size and the hydraulic capacity of the meter.

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

Projected Revenue From Fixed Charges by Customer Class **Net Revenue Requirements (50% Fixed / 50% Variable)**

Number of Meters by Class and Size ¹	FY2017-18										Total
	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	8 inch	10 inch	
Residential	1,513	1,664	8,803	102	54	-	9	5	-	-	12,150
Non-Residential	63	103	591	378	459	14	31	1	-	-	1,640
Fire Meters	-	-	-	-	-	-	67	131	70	5	273
Total Meters/Accounts	1,576	1,767	9,394	480	513	14	107	137	70	5	14,062
<i>Residential Fixed Charges by Meter Size</i>	<i>\$27.07</i>	<i>\$27.07</i>	<i>\$27.07</i>	<i>\$51.05</i>	<i>\$79.82</i>	<i>\$156.55</i>	<i>\$242.87</i>	<i>\$482.65</i>	<i>\$770.38</i>	<i>\$2,017.23</i>	
<i>Non-Residential Fixed Charges by Meter</i>	<i>\$41.06</i>	<i>\$41.06</i>	<i>\$41.06</i>	<i>\$79.03</i>	<i>\$124.59</i>	<i>\$246.08</i>	<i>\$382.77</i>	<i>\$762.44</i>	<i>\$1,218.05</i>	<i>\$3,192.37</i>	
<i>Fixed Charges - Fire Meters Only</i>	<i>\$3.49</i>	<i>\$3.69</i>	<i>\$4.09</i>	<i>\$5.09</i>	<i>\$6.29</i>	<i>\$10.09</i>	<i>\$17.09</i>	<i>\$35.09</i>	<i>\$59.10</i>	<i>\$91.10</i>	
Revenue from Fixed Charges											
Residential	\$ 491,371	\$ 540,373	\$ 2,859,348	\$ 62,456	\$ 51,820	\$ -	\$ 27,290	\$ 30,129	\$ -	\$ -	\$ 4,062,787
Non-Residential	\$ 31,269	\$ 50,748	\$ 291,158	\$ 358,143	\$ 685,949	\$ 39,940	\$ 143,363	\$ 9,519	\$ -	\$ -	\$ 1,610,089
Fire	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,657	\$ 55,206	\$ 49,433	\$ 5,687	\$ 123,983
Total Revenue - Fixed Charges											\$ 5,796,859

CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

Proposed Rate - FY2015/16 Revenue Requirements (Allocation - 50% Fixed / 50% Variable)

Customer Classes	Number of Meters ¹	Water Consumption (hcf/yr) ²	Target Rev. Req't from Vol. Charges	% of Total Rate Revenue	Uniform Commodity Rates (\$/hcf)	Proposed Rate Structure
Residential	11,678	1,528,097	\$ 2,862,494	33.7%	\$1.873	Uniform
Non-Residential	1,576	641,138	\$ 1,201,007	14.1%	\$1.873	Uniform
Subtotal	13,254	2,169,235	\$ 4,063,500	48%		
Fire	262	0	\$ -	0.0%	\$1.873	Uniform
Grand Total	13,516	2,169,235	\$ 4,063,500	48%		

Proposed Rate - FY2017/18 Revenue Requirements (Allocation - 50% Fixed / 50% Variable)

Customer Classes	Number of Meters ⁴	Water Consumption (hcf/yr) ⁴	Target Rev. Req't from Vol. Charges	% of Total Rate Revenue	Uniform Commodity Rates (\$/hcf)	Proposed Rate Structure
Residential	12,150	1,748,815	\$ 3,909,618	33.7%	\$2.236	Uniform
Non-Residential	1,640	733,744	\$ 1,640,345	14.1%	\$2.236	Uniform
Subtotal	13,789	2,482,559	\$ 5,549,962	48%		
Fire	273	0	\$ -	0.0%	\$2.236	Uniform
Grand Total	14,062	2,482,559	\$ 5,549,962	48%		

1. Number of meters by size and class is per the City of Morgan Hill's utility billing data as of July 2015 in the Billed Consumption Report by Month spreadsheets, and increased by projected customer growth in FY 2017/18 rate calculation.

2. Water consumption is 20% less than FY2014/15 consumption by customer class to account for additional conservation.

3. Volumetric rates are re-calculated for FY 2017/18 due to customer growth.

4. Number of meters by size and class, and water consumption is increased by the expected growth in connections to the water system.

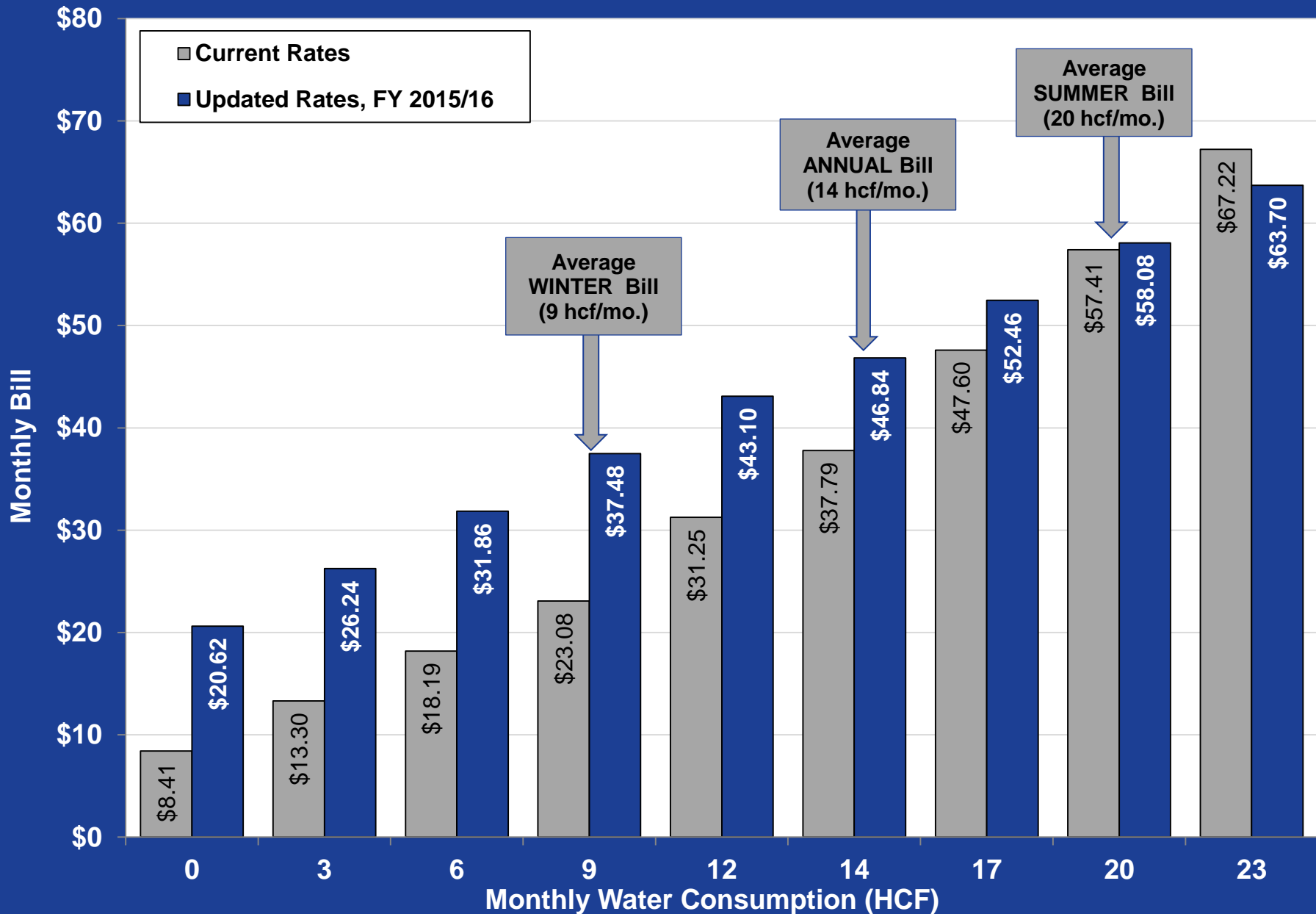
CITY OF MORGAN HILL
WATER RATE STUDY
Water Cost of Service Analysis/Rate Design

Current vs. Proposed Water Rates:

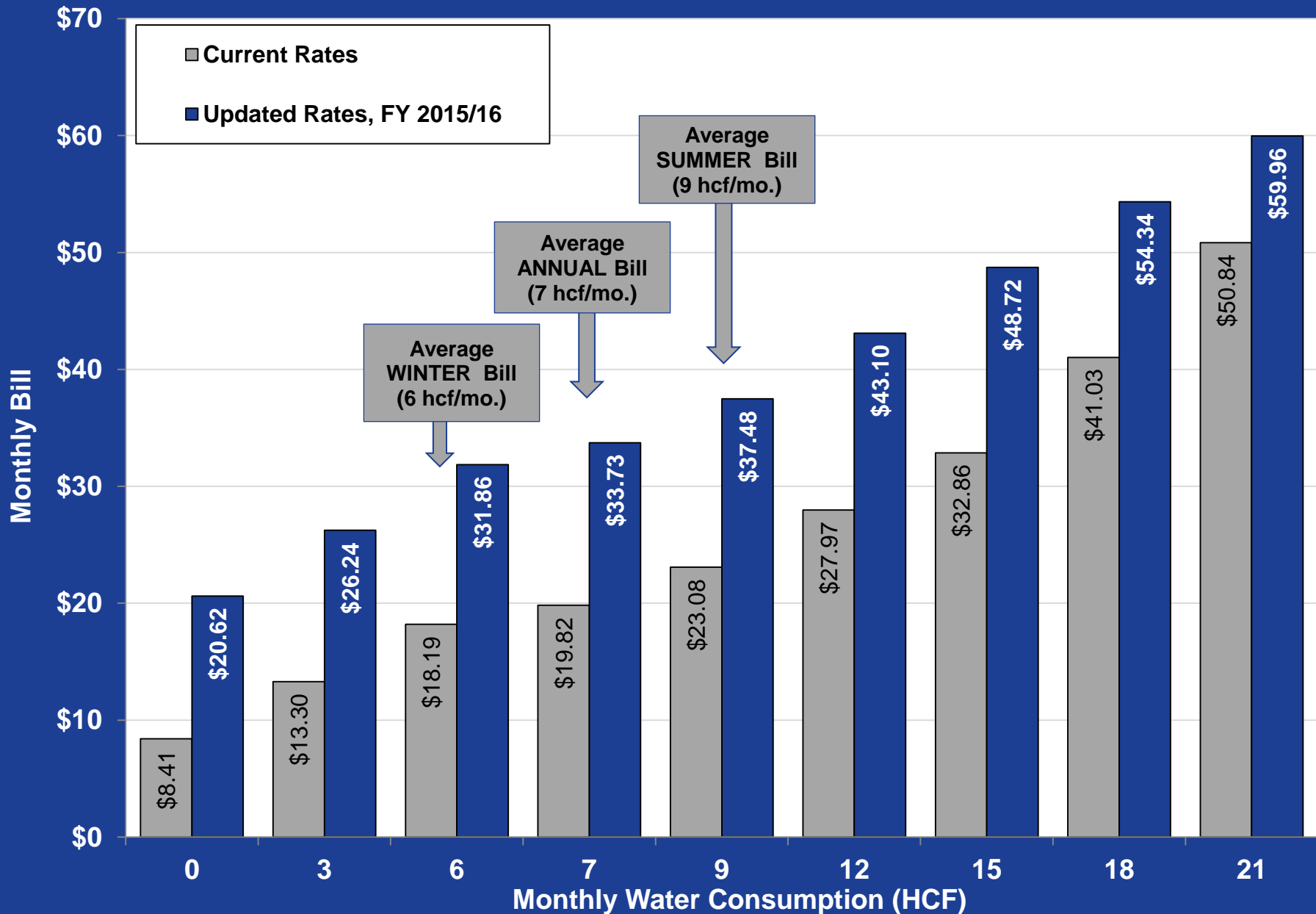
Water Rate Schedule	Current Rates	Proposed Water Rates 50% Fixed / 50% Variable				
		FY 2015/16 ¹	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Projected Increase in Rate Revenue per Financial Plan:		9.00%	7.25%	7.25%	7.25%	7.25%
Fixed Service Charges	Monthly Rates					
<u>Single- and Multi-Family Residential:</u>						
5/8 inch	\$8.41	\$20.62	\$22.11	\$27.07	\$29.03	\$31.14
3/4 inch	\$8.41	\$20.62	\$22.11	\$27.07	\$29.03	\$31.14
1 inch	\$8.41	\$20.62	\$22.11	\$27.07	\$29.03	\$31.14
1.5 inch	\$13.99	\$38.88	\$41.70	\$51.05	\$54.75	\$58.72
2 inch	\$22.48	\$60.80	\$65.21	\$79.82	\$85.61	\$91.81
3 inch	\$44.90	\$119.25	\$127.90	\$156.55	\$167.90	\$180.07
4 inch	\$72.69	\$185.00	\$198.42	\$242.87	\$260.48	\$279.36
6 inch	\$111.65	\$367.66	\$394.31	\$482.65	\$517.64	\$555.17
<u>Non-Residential:</u>						
5/8 inch	\$8.41	\$31.28	\$33.54	\$41.06	\$44.03	\$47.23
3/4 inch	\$8.41	\$31.28	\$33.54	\$41.06	\$44.03	\$47.23
1 inch	\$8.41	\$31.28	\$33.54	\$41.06	\$44.03	\$47.23
1.5 inch	\$13.99	\$60.20	\$64.56	\$79.03	\$84.76	\$90.90
2 inch	\$22.48	\$94.90	\$101.78	\$124.59	\$133.62	\$143.31
3 inch	\$44.90	\$187.45	\$201.04	\$246.08	\$263.92	\$283.06
4 inch	\$72.69	\$291.57	\$312.71	\$382.77	\$410.52	\$440.28
6 inch	\$111.65	\$580.79	\$622.89	\$762.44	\$817.72	\$877.00
<u>Fire Service:</u>						
3 inch	--	\$7.69	\$8.24	\$10.09	\$10.82	\$11.61
4 inch	\$16.58	\$13.02	\$13.96	\$17.09	\$18.33	\$19.66
6 inch	\$24.86	\$26.73	\$28.67	\$35.09	\$37.64	\$40.37
8 inch	\$33.15	\$45.02	\$48.28	\$59.10	\$63.38	\$67.98
10 inch	\$41.43	\$69.40	\$74.43	\$91.10	\$97.71	\$104.79
Volumetric Charges						
<u>Single-Family Res / Multi-Family Res per DU:</u>						
Tier 1 (1-10 hcf / 1-8 hcf)	\$1.63	--	--	--	--	--
Tier 2 (11-30 hcf / 9-16 hcf)	\$3.27	--	--	--	--	--
Tier 3 (31+ hcf / 17+)	\$4.90	--	--	--	--	--
Uniform Rate, Non-Residential Customers	\$2.67	--	--	--	--	--
Uniform Rate, All Customers	--	\$1.87	\$2.01	\$2.24	\$2.40	\$2.57

1. The Fiscal Year 2015/16 rate increase will be effective April 1, 2016, and all subsequent rate increases will be effective on January 1st of each year. In this rate alternatives, the previously approved and adopted 6.25% increase planned for January 1, 2016 will be implemented.

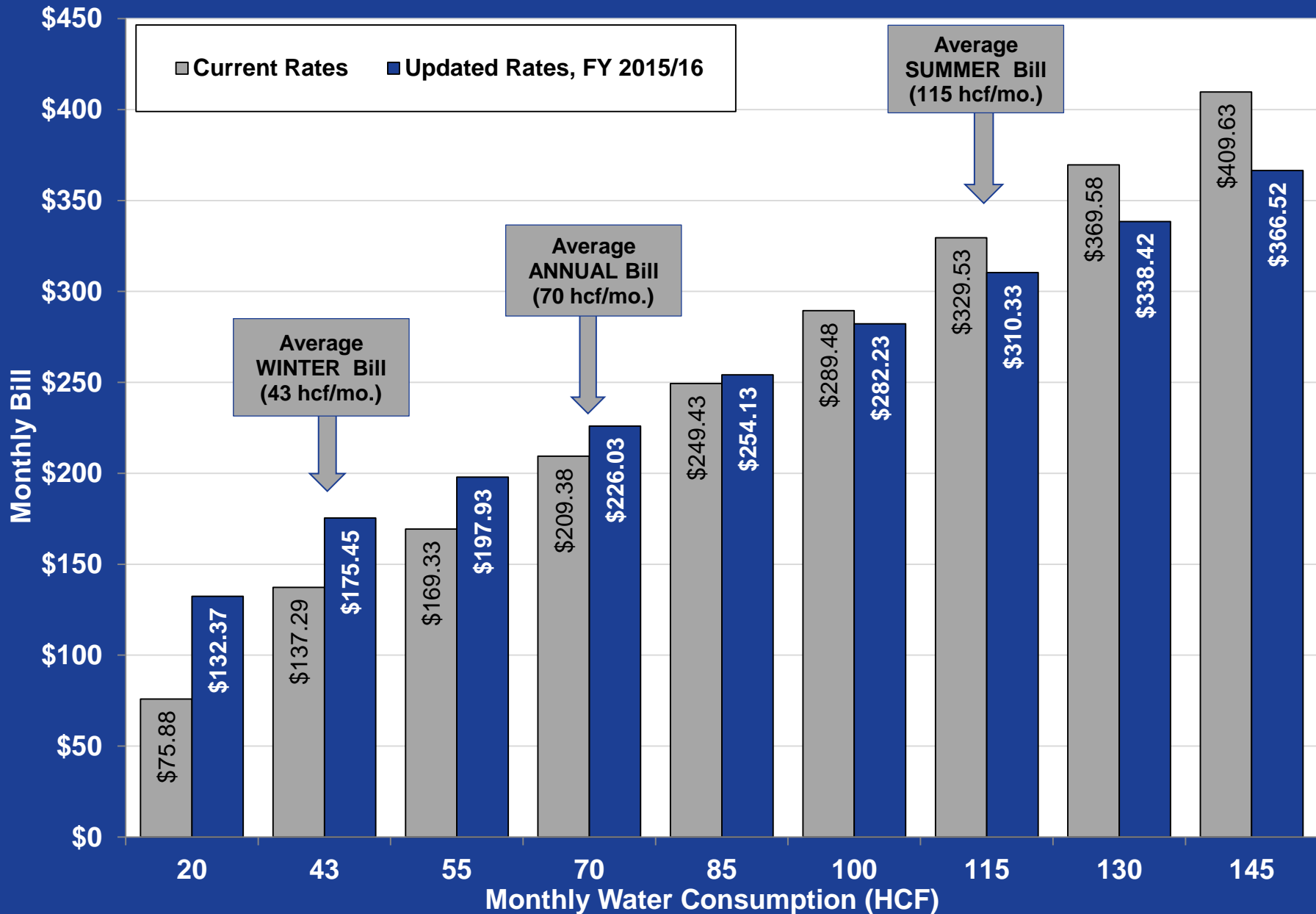
Single-Family Residential Bill Comparison Fiscal Year 2015/16 (1" meter)



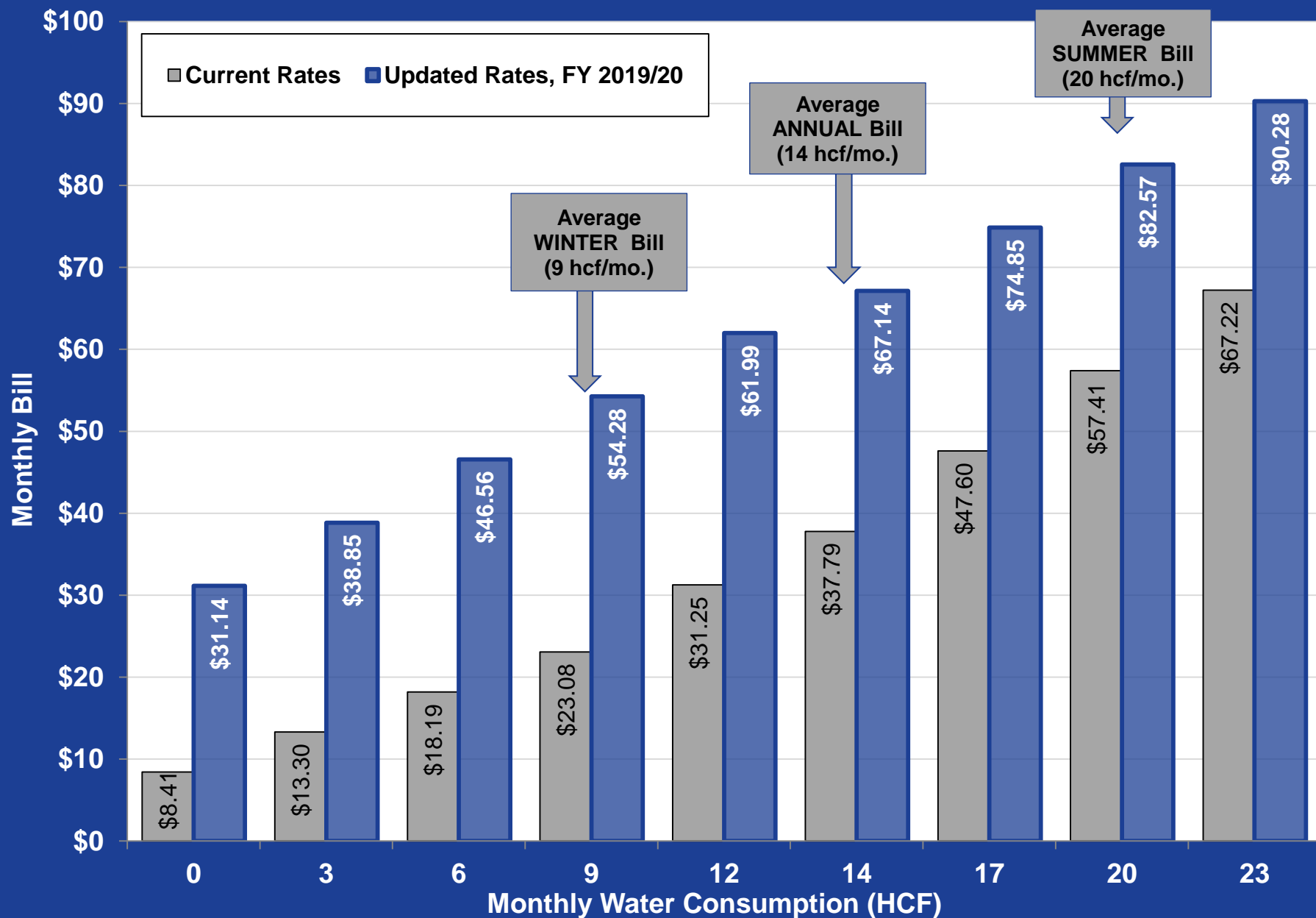
Multi-Family Residential, Two Dwelling Unit Bill Comparison Fiscal Year 2015/16 (1" meter)



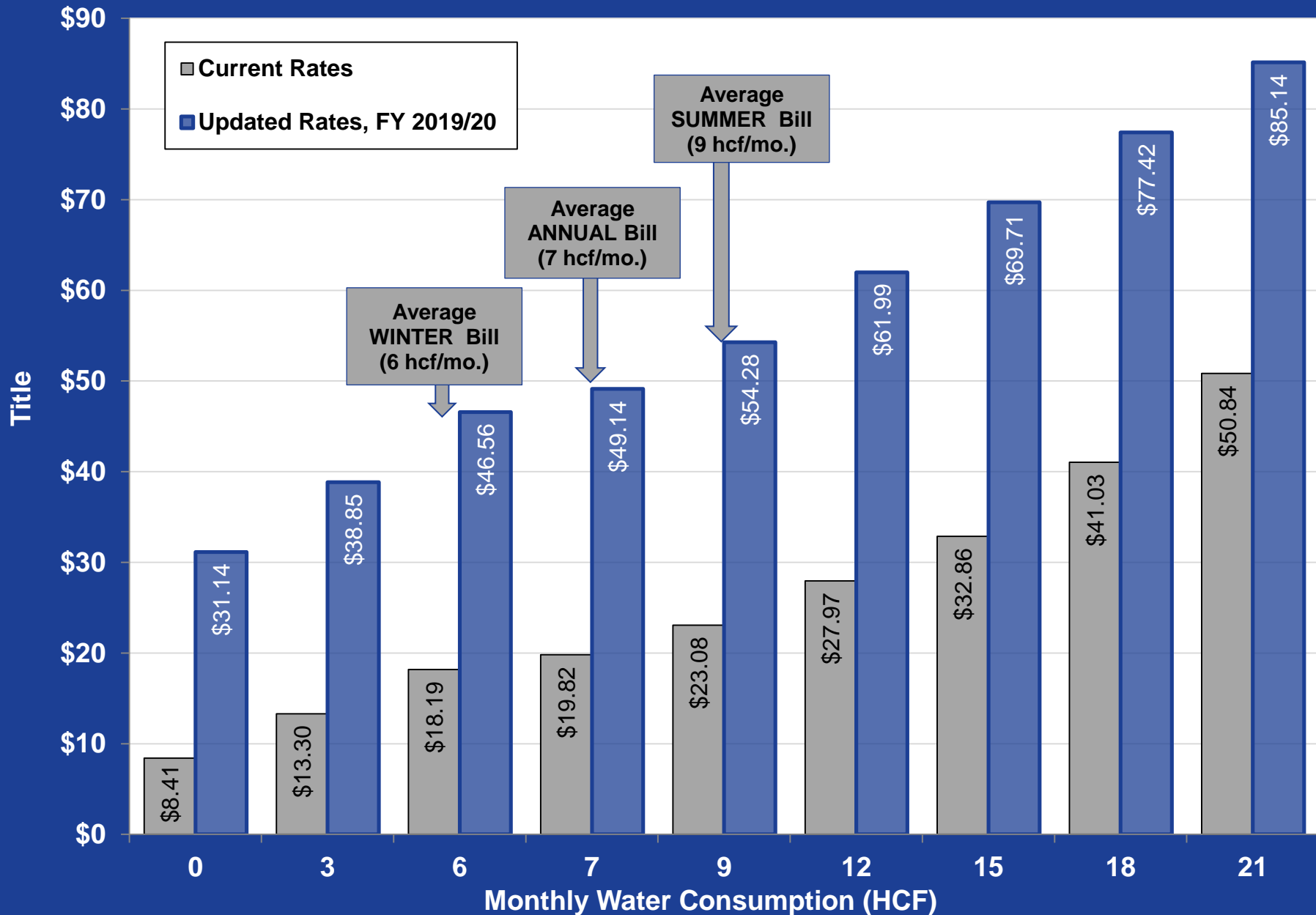
Commercial Customer Monthly Bill Comparison Fiscal Year 2015/16 (2" meter)



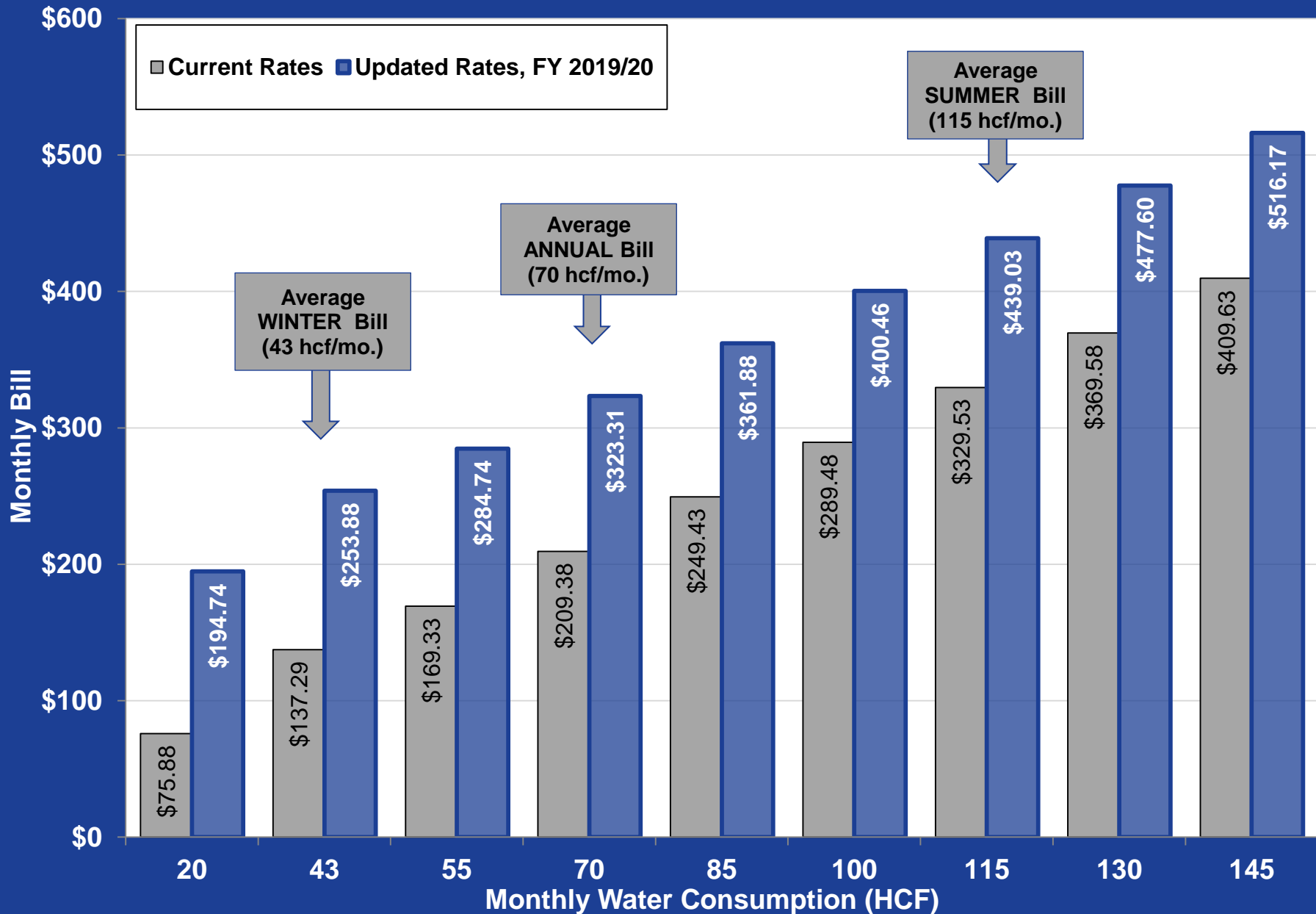
Single-Family Residential Bill Comparison Fiscal Year 2019/20 (1" meter)



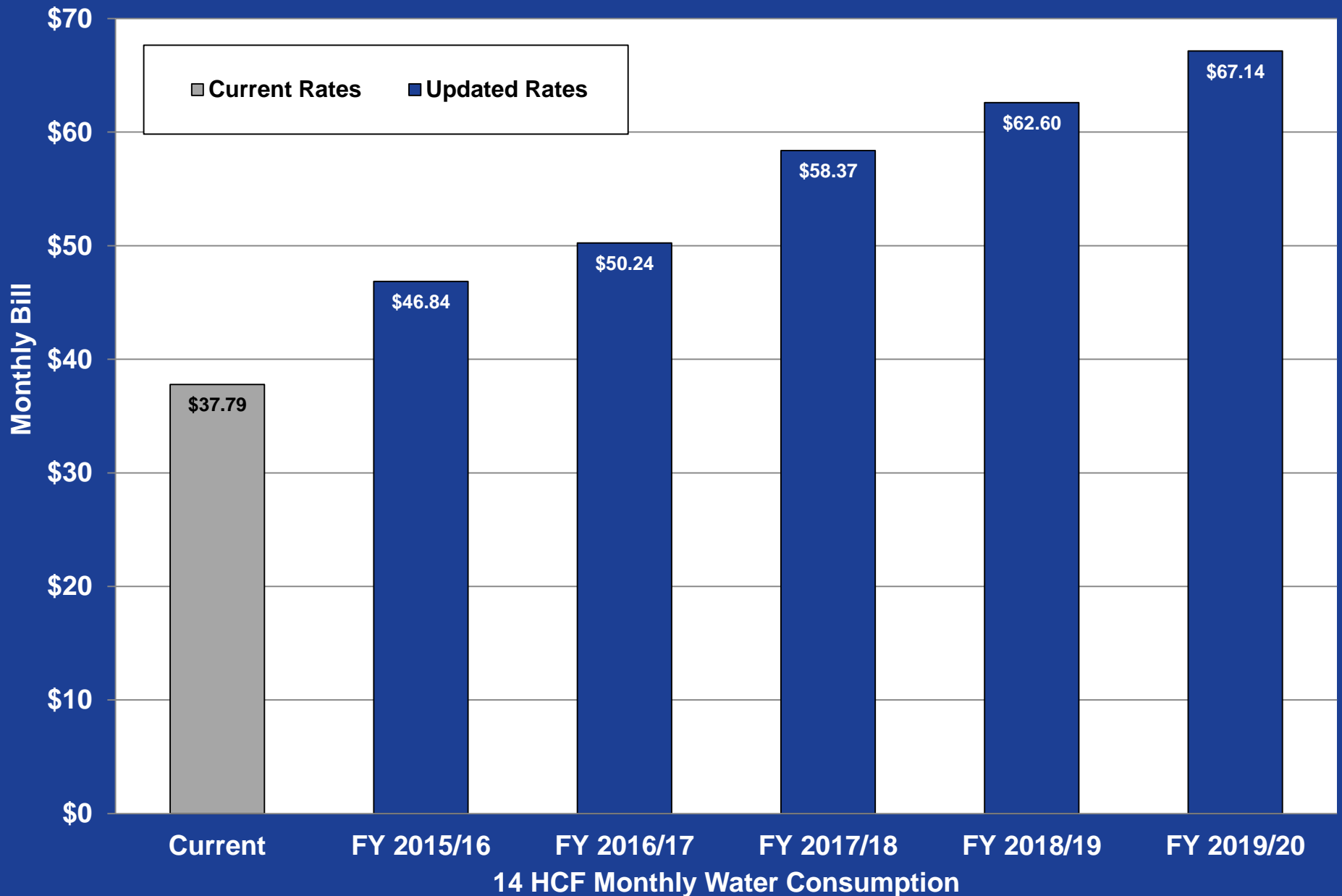
Multi-Family Residential, Two Dwelling Unit Bill Comparison Fiscal Year 2019/20 (1" meter)



Commercial Customer Monthly Bill Comparison Fiscal Year 2019/20 (2" meter)



Average Single-Family Residential Bill Comparison Fiscal Years 2015/16 *through* 2019/20 (1" meter)



APPENDIX B - WASTEWATER RATE ANALYSIS

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Financial Plan and Reserve Projections

Financial Plan & Reserve Summary

TABLE 1
FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

RATE REVENUE REQUIREMENTS SUMMARY	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Sources of Wastewater Funds					
Rate Revenue:					
Rate Revenue Under Prevailing Rates ¹	\$ 9,921,864	\$ 10,090,078	\$ 10,291,880	\$ 10,497,718	\$ 10,707,672
Non-Rate Revenue in Operations & System Replacement Funds:					
Other Operating Revenue	175,843	179,543	183,354	187,280	191,323
Interest Earnings (in Operating & Capital Reserves) ²	41,394	15,959	34,087	53,763	50,628
Total Sources of Funds	\$ 10,139,100	\$ 10,285,581	\$ 10,509,320	\$ 10,738,761	\$ 10,949,623
Uses of Wastewater Funds					
Operating Expenses ³ :					
Sewer Operations	\$ 7,378,094	\$ 7,686,589	\$ 8,004,508	\$ 8,339,093	\$ 8,682,107
Sewer Operations - Capital Expense	175,231	161,241	162,589	163,966	166,070
Sewer Rate Stabilization Fund	3,643	3,770	3,902	4,038	4,179
Sewer System Replacement Fund	9,317	9,532	9,753	9,983	10,219
Subtotal: Operating Expenses	\$ 7,566,286	\$ 7,861,132	\$ 8,180,753	\$ 8,517,079	\$ 8,862,574
Other Expenditures:					
Existing Debt Service (Operations & Replacement Fund)	\$ 502,299	\$ 1,841,791	\$ 1,845,120	\$ 1,844,478	\$ 1,844,003
New Debt Service	-	-	-	-	-
Rate-Funded Capital Expenses	-	-	-	-	-
Subtotal: Other Expenditures	\$ 502,299	\$ 1,841,791	\$ 1,845,120	\$ 1,844,478	\$ 1,844,003
Total Uses of Wastewater Funds	\$ 8,068,585	\$ 9,702,923	\$ 10,025,873	\$ 10,361,557	\$ 10,706,577
plus: Revenue from Rate Increases ⁴	-	100,901	310,815	533,326	769,026
Increase/(Decrease) to Reserves	\$ 2,070,516	\$ 683,559	\$ 794,262	\$ 910,530	\$ 1,012,072
Net Revenue Req. (Total Uses less Non-Rate Revenue)	\$ 7,851,348	\$ 9,507,421	\$ 9,808,433	\$ 10,120,514	\$ 10,464,626
Total Rate Revenue After Rate Increases	\$ 9,921,864	\$ 10,190,979	\$ 10,602,695	\$ 11,031,044	\$ 11,476,698
Projected Annual Rate Revenue Increase	0.00%	2.00%	2.00%	2.00%	2.00%
Cumulative Increase from Annual Revenue Increases	0.00%	2.00%	4.04%	6.12%	8.24%
Debt Coverage After Rate Increase ⁵	5.25	1.44	1.49	1.55	1.61
Target Debt Coverage	1.25	1.25	1.25	1.25	1.25

1. All revenues were projected through FY 2019/20 by the City; for the purpose of this analysis, NBS is using the City's projections for all revenues except rate revenue and interest earnings. Assumption for rate revenue is the 2015/16 amount going forward, inflated by the projected customer growth rate. Interest earnings beyond 2015/16 are calculated here and in the Reserve Fund Summary.
2. Interest earnings for FY 2015/16 are per the City's budget projections. For all future years, interest earnings are calculated here based on historical LAIF returns and projected cash balances.
3. The FY15/16-19/20 operating expenses are per the City's budget projections. Inflationary factors are applied to these expenses to project costs in FY20/21 and beyond.
4. Revenue from rate increases assumes new rates are implemented on January 1st of each year.
5. Per the Official Statement for the 2015 Revenue Bonds, the City is required to maintain a debt coverage ratio of 1.25 for these bond issues and all other parity debt.

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Financial Plan and Reserve Projections

Financial Plan & Reserve Summary

TABLE 2
RESERVE FUND SUMMARY

SUMMARY OF CASH ACTIVITY	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Total Beginning Cash ¹	\$ 17,814,519				
Sewer Operations Fund (640)					
Beginning Reserve Balance ¹	\$ 4,563,231	\$ 1,892,000	\$ 1,965,000	\$ 2,045,000	\$ 2,129,000
Plus: Net Cash Flow (After Rate Increases)	2,070,516	683,559	794,262	910,530	1,012,072
Plus: Transfer of Rate Stabilization Reserve Surplus	-	-	-	-	-
Plus: Transfer of Surplus in Bond Debt Reserve	-	-	-	-	-
Less: Transfer Out to Rate Stabilization Fund	(250,000)	(250,000)	(250,000)	(75,000)	(50,000)
Less: Transfer Out to Sewer System Replacement Reserve	(4,491,747)	(360,559)	(464,262)	(751,530)	(875,072)
Ending Operating Reserve Balance	\$ 1,892,000	\$ 1,965,000	\$ 2,045,000	\$ 2,129,000	\$ 2,216,000
Target Ending Balance (90-days of O&M)	\$ 1,892,000	\$ 1,965,000	\$ 2,045,000	\$ 2,129,000	\$ 2,216,000
Sewer System Replacement Fund (643)					
Beginning Reserve Balance ¹	\$ -	\$ 4,491,747	\$ 4,852,305	\$ 5,123,429	\$ 4,621,380
Plus: Grant Proceeds	-	-	-	-	-
Plus: Transfer of Operating Reserve Surplus	4,491,747	360,559	464,262	751,530	875,072
Less: Use of Reserves for Capital Projects	-	-	(193,139)	(1,253,578)	(1,641,702)
Ending Capital Improvement & Depreciation Reserve Balance	\$ 4,491,747	\$ 4,852,305	\$ 5,123,429	\$ 4,621,380	\$ 3,854,750
Target Ending Balance (3% of Assets) ²	\$ 1,473,700	\$ 1,662,300	\$ 1,950,100	\$ 2,153,500	\$ 2,402,600
Sewer Rate Stabilization Fund (642)					
Beginning Reserve Balance ¹	\$ 1,253,587	\$ 1,509,814	\$ 1,763,589	\$ 2,022,406	\$ 2,112,575
Plus: Contributions to Rate Stabilization Fund	250,000	250,000	250,000	75,000	50,000
Plus: Interest Earnings ³	6,227	3,775	8,818	15,168	15,844
Plus: Other Rate Stabilization Reserve Fund Revenue	-	-	-	-	-
Less: Transfer of Surplus to Operating Reserve	-	-	-	-	-
Ending Sewer Rate Stabilization Reserve Balance	\$ 1,509,814	\$ 1,763,589	\$ 2,022,406	\$ 2,112,575	\$ 2,178,419
Target Ending Balance (20% of Estimated Rate Revenue)	\$ 1,984,373	\$ 2,038,196	\$ 2,120,539	\$ 2,206,209	\$ 2,295,340
Ending Balance - Excludes Restricted Reserves	\$ 7,893,561	\$ 8,580,894	\$ 9,190,835	\$ 8,862,955	\$ 8,249,169
Minimum Target Ending Balance - Excludes Restricted Reserves	\$ 5,350,073	\$ 5,665,496	\$ 6,115,639	\$ 6,488,709	\$ 6,913,940
Ending Surplus/(Deficit) Compared to Reserve Targets	\$ 2,543,488	\$ 2,915,398	\$ 3,075,196	\$ 2,374,246	\$ 1,335,229
Days Cash on Hand ⁴	358	323	335	313	282

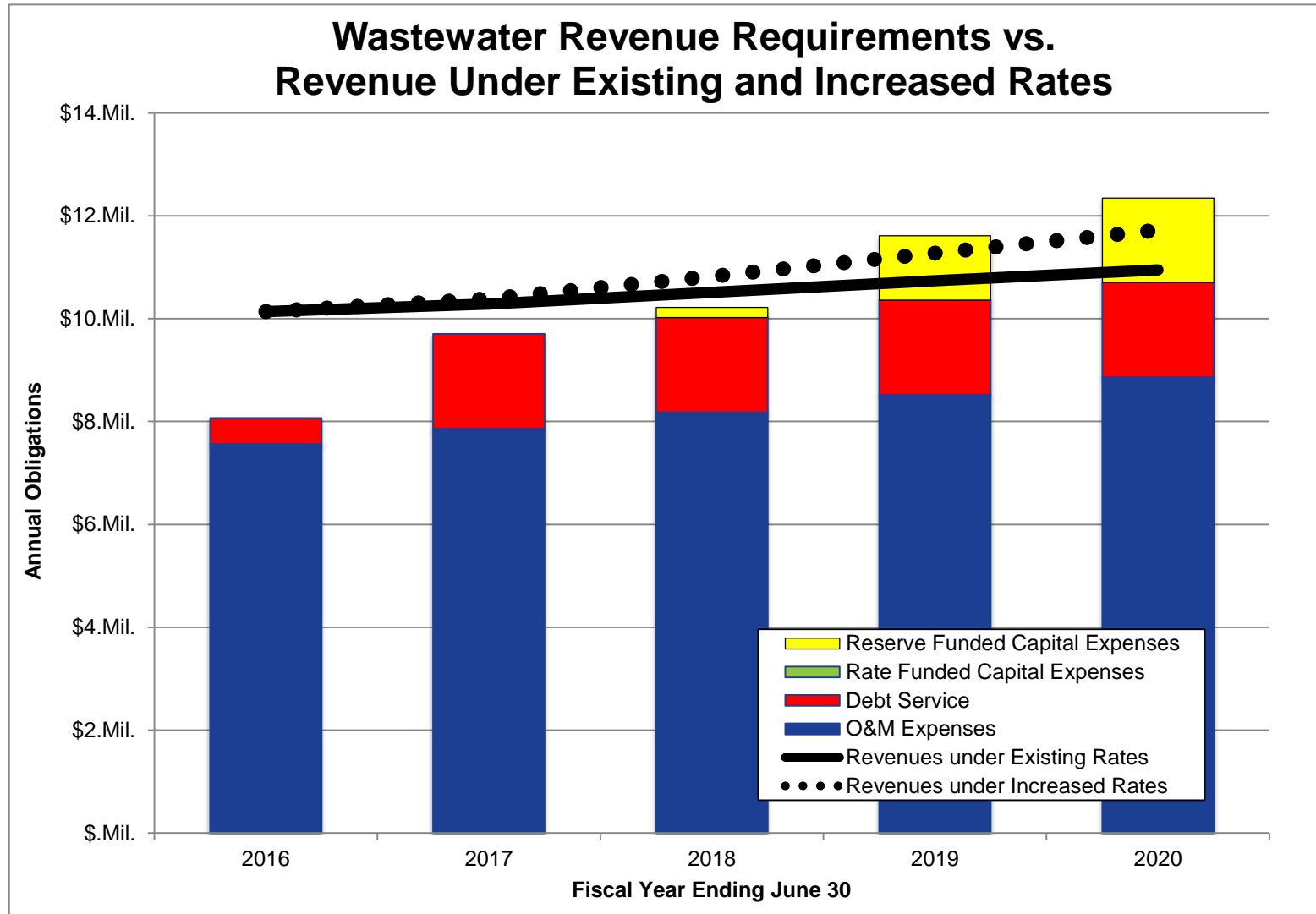
CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Financial Plan and Reserve Projections

Financial Plan & Reserve Summary

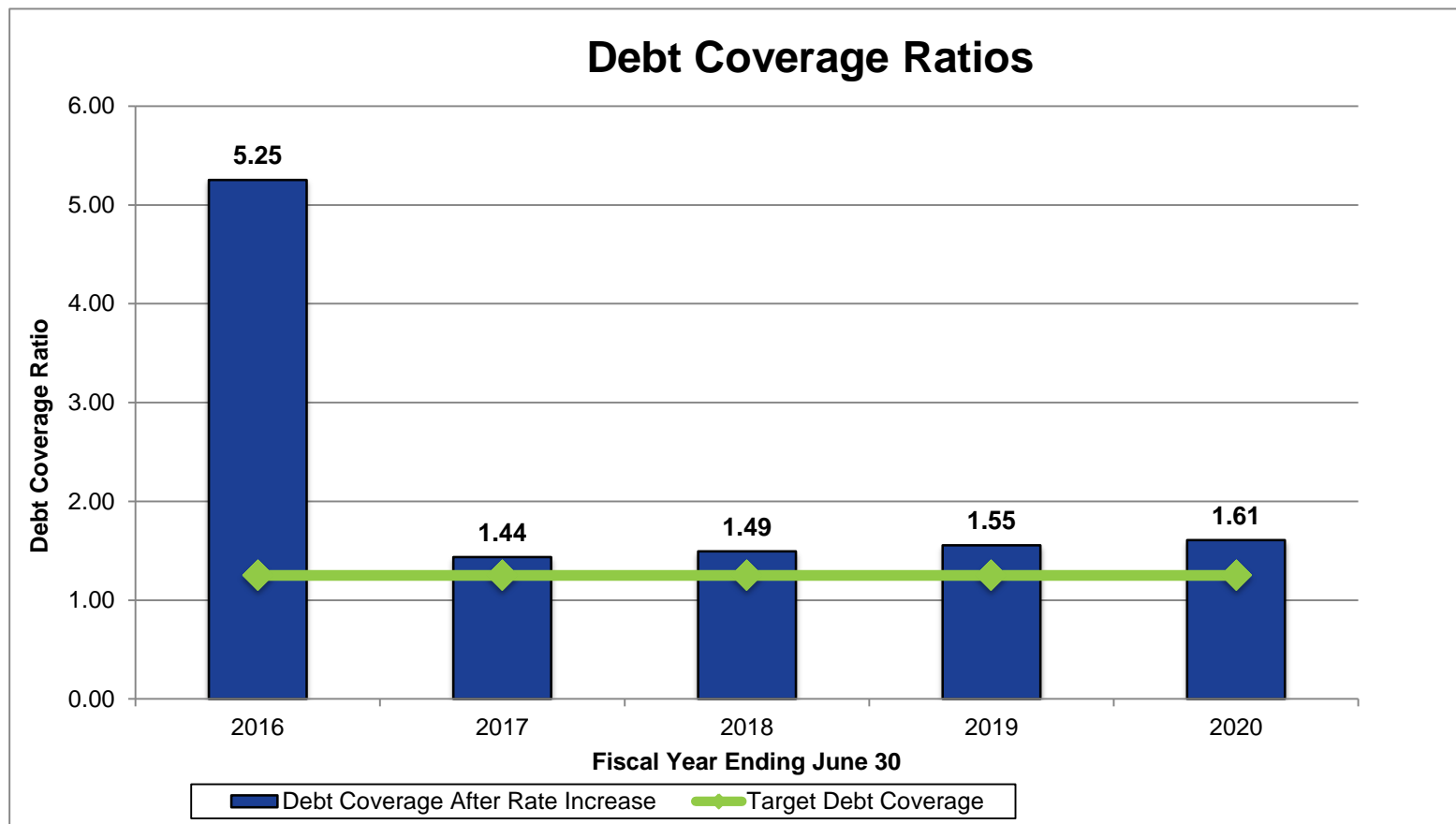
TABLE 3
RESERVE FUND SUMMARY

SUMMARY OF CASH ACTIVITY, continued	Budget	Projected			
	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Restricted Reserves:					
Impact Fee Fund (641)					
Beginning Reserve Balance ¹	\$ 11,997,701	\$ 6,865,059	\$ 7,999,606	\$ 2,869,067	\$ -
Plus: Interest Earnings ³	35,671	17,163	39,998	21,518	-
Plus: Impact Fee Revenue ⁵	6,805,774	6,070,248	3,663,360	3,663,360	3,456,000
Plus: Other Impact Fee Fund Revenue	-	-	-	-	-
Less: Annual Operating Expenditures	(27,313)	(28,111)	(28,935)	(29,787)	(30,666)
Less: Debt Service (Impact Fund Allocation of 5%)	(25,775)	(94,509)	(94,680)	(94,647)	(94,622)
Less: Use of Reserves for Capital Projects	(11,921,000)	(4,830,243)	(8,710,282)	(6,429,512)	(3,330,712)
Ending Impact Fee Fund Balance	\$ 6,865,059	\$ 7,999,606	\$ 2,869,067	\$ -	\$ -
Annual Interest Earnings Rate ⁶	0.25%	0.25%	0.50%	0.75%	0.75%

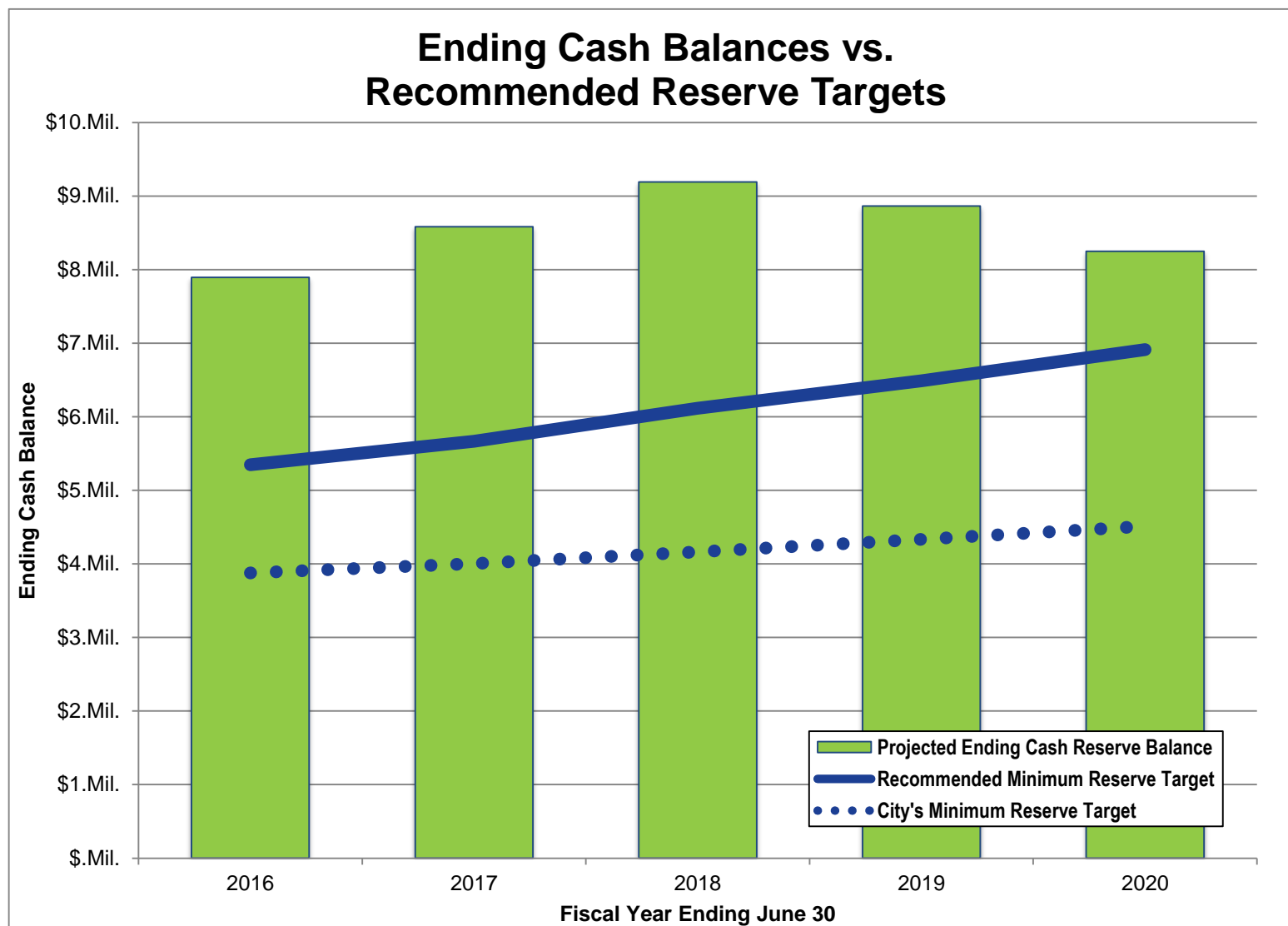
1. Total beginning cash is the sum of the cash balances in Funds 640, 641, 642, and 643, as of 07/01/2015; Cash Balances - Budget Pages.xls file provided by City Staff. The balance in Fund 643 of \$8,139,287 is revenue bond proceeds, therefore the beginning balance in this fund for purposes of this analysis is \$0. Use of bond proceeds is shown in Exhibit 2 (CIP) of this model.
2. The Sewer System Replacement reserve target is set to 3% of net assets.
3. Interest earnings for FY 2015/16 are projected in City budgets and are calculated thereafter.
4. Days cash on hand represents the number of days cash the City has available to cover operating expenses and debt service payments.
5. Impact fee revenue projections for FY 2015/16 - 2019/20 are from the following file: Cash Balances - Budget Pages.xls.
6. Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated and phase into the historical 10 year average interest earnings rate.



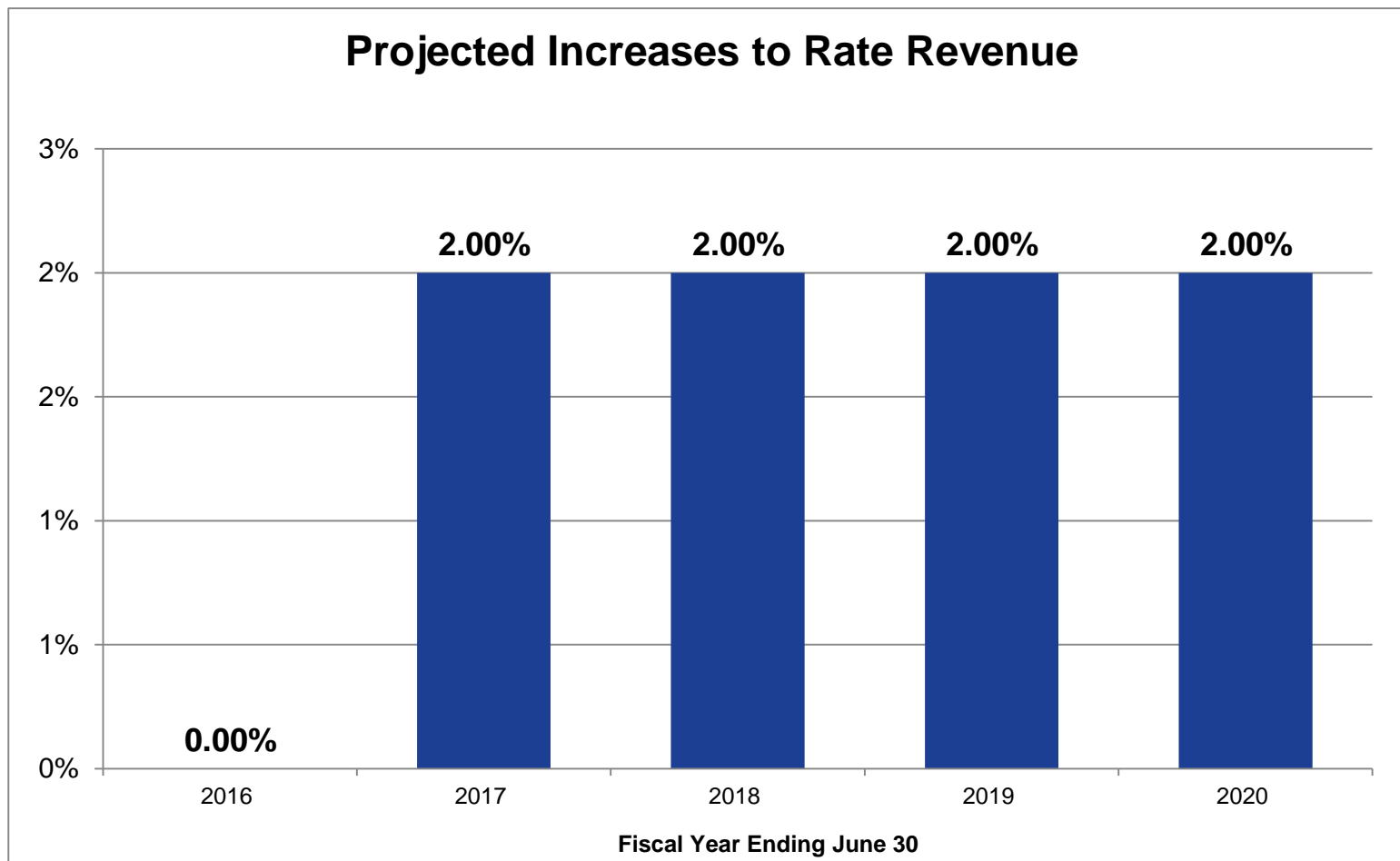
As demonstrated in the figure above, current rates are sufficient to cover all costs and will allow the utility to contribute funds to reserves through FY 2017/18. By the end of FY 2019/20, the utility is projected to run a slight deficit and will begin to draw down accumulated reserves.



As demonstrated in the figure above, the utility is projected to exceed the debt coverage ratio of 1.25, that is required by bond covenants for the outstanding 2015 Sewer Revenue Bonds.



As shown in the figure above, the City is currently holding an amount in reserves that exceeds the recommended reserve target. However, the City is planning to draw down those reserves over the five-year period and will have funds available for capital improvement projects at the conclusion of the planning period.



CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

REVENUE FORECAST ¹

SOURCES OF REVENUE	Basis	2016	2017	2018	2019	2020
Sewer Operations Fund (640)						
INTEREST INCOME ²	See FP	\$ 23,456	\$ -	\$ -	\$ -	\$ -
SEWER SERVICE FEES ²	1	\$ 9,921,864	\$10,090,078	\$10,291,880	\$10,497,718	\$10,707,672
FRONT FOOTAGE/OFFSITE	6	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500
UB COLLECTIONS	6	\$ 1,803	\$ 1,857	\$ 1,912	\$ 1,970	\$ 2,029
LIFT STATION CHARGES	1	\$ 103,000	\$ 106,090	\$ 109,273	\$ 112,551	\$ 115,927
REIMBURSEMENT OF EXPENSES	6	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319
UTILITY BILL DELINQ CHR	1	\$ 16,480	\$ 16,974	\$ 17,484	\$ 18,008	\$ 18,548
Sewer Impact Fund (641)						
DEVELOPMENT IMPACT FEES (AB1600) ²	6	\$ 6,805,774	\$ 6,070,248	\$ 3,663,360	\$ 3,663,360	\$ 3,456,000
Sewer Rate Stabilization Fund (642)						
INTEREST INCOME ²	See FP	\$ 6,227	\$ -	\$ -	\$ -	\$ -
Sewer System Replacement Fund (643)						
INTEREST INCOME ²	See FP	\$ 17,938	\$ -	\$ -	\$ -	\$ -
TOTAL: REVENUE		\$16,986,772	\$16,339,869	\$14,138,594	\$14,348,358	\$14,354,995

REVENUE SUMMARY	2016	2017	2018	2019	2020
Sewer Operations Fund (640)					
SEWER RATE REVENUE	\$ 9,921,864	\$10,090,078	\$10,291,880	\$10,497,718	\$10,707,672
OTHER REVENUE	\$ 175,843	\$ 179,543	\$ 183,354	\$ 187,280	\$ 191,323
INTEREST INCOME	\$ 23,456	\$ -	\$ -	\$ -	\$ -
Sewer Impact Fund (641)					
IMPACT FEE REVENUE	\$ 6,805,774	\$ 6,070,248	\$ 3,663,360	\$ 3,663,360	\$ 3,456,000
INTEREST INCOME	\$ 35,671	\$ -	\$ -	\$ -	\$ -
Sewer Rate Stabilization Fund (642)					
INTEREST INCOME	\$ 6,227	\$ -	\$ -	\$ -	\$ -
Sewer System Replacement Fund (643)					
INTEREST INCOME	\$ 17,938	\$ -	\$ -	\$ -	\$ -
OTHER REVENUE	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL: REVENUE	\$16,986,772	\$16,339,869	\$14,138,594	\$14,348,358	\$14,354,995

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST ¹ :

SEWER OPERATIONS FUND, Operations	Basis	2016	2017	2018	2019	2020
SALARIES						
SALARIES - GENERAL	3	\$ 1,226,890	\$ 1,258,137	\$ 1,289,423	\$ 1,321,490	\$ 1,354,360
EARNED LEAVE LIABILITY	3	\$ 12,740	\$ 12,740	\$ 12,740	\$ 12,740	\$ 12,740
OVERTIME - GENERAL	3	\$ 25,750	\$ 26,523	\$ 27,318	\$ 28,138	\$ 28,982
RETIREMENT - GENERAL	3	\$ 218,926	\$ 232,026	\$ 242,308	\$ 253,620	\$ 264,669
DEFERRED COMPENSATION	3	\$ 24,538	\$ 25,163	\$ 25,788	\$ 26,430	\$ 27,087
GROUP INSURANCE	3	\$ 235,691	\$ 247,436	\$ 259,768	\$ 272,714	\$ 286,309
MEDICARE	3	\$ 18,204	\$ 18,668	\$ 19,133	\$ 19,610	\$ 20,099
INCOME PROTECTION INS	3	\$ 11,970	\$ 11,970	\$ 11,970	\$ 11,970	\$ 11,970
WORKERS COMP	3	\$ 61,983	\$ 38,402	\$ 39,360	\$ 40,343	\$ 41,350
BENEFITS	3	\$ 2,783	\$ 2,783	\$ 2,783	\$ 2,783	\$ 2,783
UNIFORM	3	\$ 7,426	\$ 7,649	\$ 7,879	\$ 8,115	\$ 8,358
SUPPLIES						
ELECTRIC	4	\$ 25,585	\$ 26,353	\$ 27,143	\$ 27,958	\$ 27,958
WATER/SEWER	2	\$ 1,977	\$ 2,016	\$ 2,057	\$ 2,098	\$ 2,098
TELEPHONE	2	\$ 9,364	\$ 9,551	\$ 9,742	\$ 9,937	\$ 9,937
GASOLINE & OIL	2	\$ 22,889	\$ 23,347	\$ 23,814	\$ 24,290	\$ 24,290
CONTRACT SERVICES	2	\$ 299,500	\$ 278,485	\$ 286,840	\$ 295,445	\$ 304,308
BANK CARD SERVICE FEES	2	\$ 31	\$ 32	\$ 33	\$ 34	\$ 35
RENTALS - OUTSIDE	2	\$ 2,601	\$ 2,653	\$ 2,706	\$ 2,760	\$ 2,760
STATIONERY & OFFICE SUPPLIES	2	\$ 5,202	\$ 5,306	\$ 5,412	\$ 5,520	\$ 5,520
COMPUTER HARDWARE-NON CAPITAL	2	\$ 8,323	\$ 8,490	\$ 8,659	\$ 8,833	\$ 8,833
COMPUTER SOFTWARE-NON CAPITAL	2	\$ 9,364	\$ 9,551	\$ 9,742	\$ 9,937	\$ 9,937
OTHER SUPPLIES	2	\$ 140,650	\$ 144,870	\$ 149,216	\$ 153,692	\$ 158,303
ADVERTISING	2	\$ 2,040	\$ 2,081	\$ 2,122	\$ 2,165	\$ 2,165
POSTAGE & FREIGHT	2	\$ 5,260	\$ 265	\$ 271	\$ 276	\$ 276
PRINTING	2	\$ 1,561	\$ 1,592	\$ 1,624	\$ 1,656	\$ 1,656
AUTO MILEAGE	2	\$ 153	\$ 156	\$ 159	\$ 162	\$ 162
SEWER CHRGS MAINT/OPS (SCRWA)	2	\$ 3,879,467	\$ 4,152,849	\$ 4,360,491	\$ 4,578,516	\$ 4,807,441
WATER/SEWER MAINTENANCE SVS	2	\$ 18,207	\$ 18,571	\$ 18,943	\$ 19,321	\$ 19,321
SMALL TOOLS	2	\$ 4,162	\$ 4,245	\$ 4,330	\$ 4,416	\$ 4,416
OTHER EXPENSE	2	\$ 7,500	\$ 7,725	\$ 7,957	\$ 8,195	\$ 8,441
TRAINING & EDUCATION	2	\$ 7,803	\$ 7,959	\$ 8,118	\$ 8,281	\$ 8,281
CONFERENCE & MEETINGS	2	\$ 780	\$ 796	\$ 812	\$ 828	\$ 828
MEMBERSHIP & DUES	2	\$ 5,514	\$ 5,624	\$ 5,737	\$ 5,852	\$ 5,852
SUBSCRIPTION & PUBLICATIONS	2	\$ 179	\$ 182	\$ 186	\$ 189	\$ 189
MAINT - MACHINE/EQUIPMENT	2	\$ 17,687	\$ 18,041	\$ 18,401	\$ 18,769	\$ 18,769
MAINT - AUTO/TRUCKS	2	\$ 31,212	\$ 31,836	\$ 32,473	\$ 33,122	\$ 33,122
SUB-TOTAL: SEWER OPERATIONS FUND (640), Operations		\$ 6,353,912	\$ 6,644,072	\$ 6,925,457	\$ 7,220,205	\$ 7,523,605

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST, continued ¹ :

SEWER OPERATIONS FUND, Operations, continued	Basis	2016	2017	2018	2019	2020
CAPITAL						
MACHINERY/EQUIPMENT	2	\$ 51,000	\$ 52,020	\$ 53,060	\$ 54,122	\$ 55,746
COMPUTER EQUIPMENT	2	\$ 7,283	\$ 7,428	\$ 7,577	\$ 7,729	\$ 7,961
COMPUTER SOFTWARE	2	\$ 7,803	\$ 7,959	\$ 8,118	\$ 8,281	\$ 8,529
DEBT						
SERVICE FEES	2	\$ 3,713	\$ 3,825	\$ 3,939	\$ 4,057	\$ 4,179
INTERNAL SERVICES						
GENERAL LIABILITY INSURANCE	2	\$ 109,309	\$ 120,240	\$ 132,264	\$ 145,490	\$ 160,039
BUILDING MAINT - CURRENT SERVICES	2	\$ 27,053	\$ 27,865	\$ 28,701	\$ 29,562	\$ 30,448
BUILDING MAINT - FUTURE REPLACEMENT	2	\$ 1,332	\$ 1,372	\$ 1,413	\$ 1,456	\$ 1,499
FLEET REPLACEMENT	2	\$ 109,145	\$ 93,834	\$ 93,834	\$ 93,834	\$ 93,834
INFO SYSTEM SERVICES	2	\$ 26,558	\$ 27,355	\$ 28,175	\$ 29,021	\$ 29,891
GF ADMIN	2	\$ 194,051	\$ 200,843	\$ 207,872	\$ 215,148	\$ 222,678
TRANSFERS						
TRANSFER OUT-010 (GENERAL FUND)	2	\$ 249,195	\$ 250,671	\$ 252,191	\$ 253,757	\$ 255,369
TRANSFER OUT-232 (ENVIRONMENTAL PROGRAMS)	2	\$ 56,931	\$ 58,758	\$ 60,632	\$ 62,542	\$ 62,542
TRANSFER OUT-207 (GENL PLAN UPDATE)	2	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000
TRANSFER OUT-650 (WATER OPS)	2	\$ 316,409	\$ 309,212	\$ 318,533	\$ 329,350	\$ 339,935
TRANSFER OUT - EMPLOYEE BENEFITS FUND	3	\$ 36,630	\$ 39,378	\$ 42,331	\$ 45,506	\$ 48,919
SUB-TOTAL: SEWER OPERATIONS FUND (640), Operations EXPENSES		\$ 1,199,413	\$ 1,203,758	\$ 1,241,641	\$ 1,282,854	\$ 1,324,571
TOTAL: SEWER OPERATIONS FUND (640), Operations EXPENSES		\$ 7,553,325	\$ 7,847,830	\$ 8,167,097	\$ 8,503,059	\$ 8,848,177

OPERATING EXPENSE FORECAST, continued ¹ :

SEWER IMPACT FUND	Basis	2016	2017	2018	2019	2020
SUPPLIES						
CONTRACT SERVICES	2	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194
BANK CARD SERVICE FEES	2	\$ 10,786	\$ 11,109	\$ 11,443	\$ 11,786	\$ 12,140
OTHER EXPENSE	2	\$ -	\$ -	\$ -	\$ -	\$ -
INTERNAL SERVICES						
GF ADMIN	2	\$ 12,652	\$ 13,095	\$ 13,553	\$ 14,027	\$ 14,518
TRANSFERS						
TRANSFER OUT-207 (GENL PLAN UPDATE)	2	\$ 2,814	\$ 2,814	\$ 2,814	\$ 2,814	\$ 2,814
TOTAL: SEWER IMPACT FUND (641) EXPENSES		\$ 27,313	\$ 28,111	\$ 28,935	\$ 29,787	\$ 30,666

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

OPERATING EXPENSE FORECAST, continued ¹ :

SEWER RATE STABILIZATION FUND	Basis	2016	2017	2018	2019	2020
SUPPLIES						
CONTRACT SERVICES	2	\$ 106	\$ 109	\$ 113	\$ 116	\$ 119
INTERNAL SERVICES						
GF ADMIN	2	\$ 3,537	\$ 3,661	\$ 3,789	\$ 3,922	\$ 4,059
TOTAL: SEWER RATE STABILIZATION FUND (642) EXPENSES		\$ 3,643	\$ 3,770	\$ 3,902	\$ 4,038	\$ 4,179

OPERATING EXPENSE FORECAST, continued ¹ :

SEWER SYSTEM REPLACEMENT FUND	Basis	2016	2017	2018	2019	2020
SUPPLIES						
CONTRACT SERVICES	2	\$ 106	\$ 109	\$ 113	\$ 116	\$ 119
DEBT						
SERVICE FEES	2	\$ 2,500	\$ 2,575	\$ 2,652	\$ 2,732	\$ 2,814
INTERNAL SERVICES						
GF ADMIN	2	\$ 3,897	\$ 4,033	\$ 4,175	\$ 4,321	\$ 4,472
TRANSFERS						
TRANSFER OUT-207 (GENL PLAN UPDATE)	6	\$ 2,814	\$ 2,814	\$ 2,814	\$ 2,814	\$ 2,814
TOTAL: SEWER SYSTEM REPLACEMENT FUND (643) EXPENSES		\$ 9,317	\$ 9,532	\$ 9,753	\$ 9,983	\$ 10,219
Grand Total: Operating Expenses		\$ 7,593,599	\$ 7,889,243	\$ 8,209,688	\$ 8,546,866	\$ 8,893,240

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Operating Revenue and Expenses

EXHIBIT 1

Excluded from Analysis ⁴ :

Revenues:	Basis	2016	2017	2018	2019	2020
Sewer System Replacement Fund						
TRANSFER FROM-640 (SEWER OPS)	6	\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654
Total Revenue Excluded from Analysis:		\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654
Expenses:	Basis	2016	2017	2018	2019	2020
Sewer Operations Fund						
Operations						
DEBT						
PRINCIPAL	6	\$ 1,320,000	\$ 1,375,000	\$ 1,430,000	\$ 1,495,000	\$ 1,560,000
INTEREST	6	\$ 331,462	\$ 295,686	\$ 258,403	\$ 217,014	\$ 172,505
TRANSFERS						
TRANSFER OUT-643 (SEWER CIP)	6	\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654
Sewer Impact Fund						
DEBT						
INTEREST	6	\$ 152,001	\$ 135,595	\$ 118,497	\$ 99,517	\$ 79,107
PROJECTS						
CONSTRUCTION ³	2	\$11,921,000	\$ 4,666,000	\$ 8,128,000	\$ 6,982,000	\$ 2,900,000
Sewer System Replacement Fund						
DEBT						
PRINCIPAL	6	\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654	\$ 588,654
PROJECTS						
CONSTRUCTION ³	2	\$ 2,271,000	\$ 3,057,000	\$ 2,696,000	\$ 77,000	\$ 80,000
Total Expenses Excluded from Analysis:		\$17,172,771	\$10,706,589	\$13,808,208	\$10,047,839	\$ 5,968,919

FORECASTING ASSUMPTIONS:

INFLATION FACTORS	2016	2017	2018	2019	2020
1 Customer Growth (5)	-	2.00%	2.00%	2.00%	2.00%
2 General Cost Inflation	-	3.00%	3.00%	3.00%	3.00%
3 Labor Cost Inflation .	-	5.00%	5.00%	5.00%	5.00%
4 Energy Cost Inflation	-	4.00%	4.00%	4.00%	4.00%
5 Other Cost Inflation	-	2.00%	2.00%	2.00%	2.00%
6 No Escalation	-	0.00%	0.00%	0.00%	0.00%

1. Data source for the FY 2015/16 adopted budget is from the following file: Operating Budget FY 2013-14 to FY 2015-16.xls. Budget data for FY 2016/17 - FY 2017/18 is from the following file: Operating Budget FY 2016-17 to FY 2018-19.xls. Inflationary factors are applied to project revenue and expenses in all future years.
2. All revenues were projected through FY 2019/20 by the City; for the purpose of this analysis, NBS is using the City's projections for all revenues except internal transfers and interest earnings. NBS is using a revised FY 2015/16 - 2019/20 rate revenue projection (provided by City Staff in file: Revenues Projection Without Rate Increases.xlsx) and inflating by the projected customer growth rate thereafter. Interest earnings beyond 2015/16 and internal transfers are calculated in the Financial Plan and Reserve Fund Summary of this model.
3. Construction expenses are excluded from this analysis and are handled in Exhibit 2 (CIP).
4. The following revenues and expenses have been excluded from this analysis since they do not represent actual cash expenses, or are handled in the model elsewhere (i.e. Debt is on Exhibit 3)
5. Customer growth is calculated based on source: Projected Growth Rates.pdf.

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Capital Improvement Plan Expenditures

EXHIBIT 2

CAPITAL FUNDING SUMMARY

CAPITAL FUNDING FORECAST		Budget	Projected			
Funding Sources:		FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Grants		\$ -	\$ -	\$ -	\$ -	\$ -
Use of Impact Fee Reserves (Fund 641)		\$ 11,921,000	\$ 4,830,243	\$ 8,710,282	\$ 6,429,512	\$ 3,330,712
Use of Impact Fee Revenue (TBD)		\$ -	\$ -	\$ -	\$ 1,316,045	\$ 5,802,756
Use of SRF Loan Funding		\$ -	\$ -	\$ -	\$ -	\$ -
Use of New Revenue Bond Proceeds		\$ -	\$ -	\$ -	\$ -	\$ -
Use of 2015 Revenue Bonds ¹		\$ 2,246,000	\$ 3,197,287	\$ 2,696,000	\$ -	\$ -
Use of Sewer System Replacement Reserve (Fund 643)		\$ -	\$ -	\$ 193,139	\$ 1,253,578	\$ 1,641,702
Rate Revenue		\$ -	\$ -	\$ -	\$ -	\$ -
Total Sources of Capital Funds		\$ 14,167,000	\$ 8,027,530	\$ 11,599,421	\$ 8,999,134	\$ 10,775,169
Uses of Capital Funds:						
Total Project Costs		\$ 14,167,000	\$ 7,994,850	\$ 11,599,421	\$ 8,999,134	\$ 10,775,169
Capital Funding Surplus (Deficiency)		\$ -	\$ 32,681	\$ -	\$ -	\$ -
New SRF Loan Funding		\$ -	\$ -	\$ -	\$ -	\$ -
New Revenue Bond Proceeds		\$ -	\$ -	\$ -	\$ -	\$ -

CAPITAL IMPROVEMENT PROGRAM

Capital Improvement Program Costs (in Current-Year Dollars) (3):

Project Description	Fund	2016	2017	2018	2019	2020
302000 Sanitary Sewer Rehabilitation - Replacement Funded	643	\$ 548,000	\$ 605,000	\$ 1,719,000	\$ 850,000	\$ 1,100,000
302000 Sanitary Sewer Rehabilitation - Impact Funded	641	\$ 182,000	\$ -	\$ 1,818,000	\$ -	\$ -
303A11 Sewer Plant Expansion Project - Impact Funded	641	\$ 1,328,000	\$ 693,000	\$ 1,279,000	\$ 4,452,000	\$ 5,053,140
303A11 Sewer Plant Improvement - Replacement Funded	643	\$ -	\$ 550,000	\$ 80,000	\$ 80,000	\$ 79,543
303A11 Sewer Plant Improvement - Impact Funded	641	\$ 8,525,000	\$ 633,000	\$ -	\$ -	\$ -
304000 Lift Station Rehabilitation -Replacement Funded	643	\$ 1,298,000	\$ 932,000	\$ 672,000	\$ 200,000	\$ 250,000
304000 Lift Station Rehabilitation -Impact Funded	641	\$ -	\$ 108,000	\$ 1,025,000	\$ -	\$ -
308A08 New Trunk Line - Replacement Funded	643	\$ -	\$ 348,000	\$ 225,000	\$ -	\$ -
308A08 New Trunk Line - Impact Funded	641	\$ 1,886,000	\$ 3,024,000	\$ 2,937,000	\$ 2,530,000	\$ 2,900,000
315006 New Sewer Mains - Replacement Funded	643	\$ -	\$ 622,000	\$ -	\$ -	\$ -
315006 New Sewer Mains - Impact Funded	641	\$ -	\$ 208,000	\$ 1,069,000	\$ -	\$ -
-- New Lift Station - Impact Funded	641	\$ -	\$ -	\$ -	\$ -	\$ -
623014 Recycled Water MP / Supplemental Study ⁴	643	\$ 400,000	\$ -	\$ -	\$ -	\$ -
-- Estimated Future Projects ⁵	643	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Capital Improvement Program Costs (Current-Year Dollars)		\$ 14,167,000	\$ 7,723,000	\$ 10,824,000	\$ 8,112,000	\$ 9,382,683
Total: CIP Costs (Current Year) Paid with Impact Fees, Fund	641	\$ 11,921,000	\$ 4,666,000	\$ 8,128,000	\$ 6,982,000	\$ 7,953,140
Total: CIP Costs (Current Year) Paid with Replacement, Fund	643	\$ 2,246,000	\$ 3,057,000	\$ 2,696,000	\$ 1,130,000	\$ 1,429,543

**CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Capital Improvement Plan Expenditures**

EXHIBIT 2

Capital Improvement Program Costs (in Future-Year Dollars) ⁶:

Project Description	Fund	2016	2017	2018	2019	2020
302000 Sanitary Sewer Rehabilitation - Replacement Funded	643	\$ 548,000	\$ 626,296	\$ 1,842,148	\$ 942,957	\$ 1,263,251
302000 Sanitary Sewer Rehabilitation - Impact Funded	641	\$ 182,000	\$ -	\$ 1,948,240	\$ -	\$ -
303A11 Sewer Plant Expansion Project - Impact Funded	641	\$ 1,328,000	\$ 717,394	\$ 1,370,626	\$ 4,938,874	\$ 5,803,078
303A11 Sewer Plant Improvement - Replacement Funded	643	\$ -	\$ 569,360	\$ 85,731	\$ 88,749	\$ 91,348
303A11 Sewer Plant Improvement - Impact Funded	641	\$ 8,525,000	\$ 655,282	\$ -	\$ -	\$ -
304000 Lift Station Rehabilitation -Replacement Funded	643	\$ 1,298,000	\$ 964,806	\$ 720,141	\$ 221,872	\$ 287,103
304000 Lift Station Rehabilitation -Impact Funded	641	\$ -	\$ 111,802	\$ 1,098,430	\$ -	\$ -
308A08 New Trunk Line - Replacement Funded	643	\$ -	\$ 360,250	\$ 241,119	\$ -	\$ -
308A08 New Trunk Line - Impact Funded	641	\$ 1,886,000	\$ 3,130,445	\$ 3,147,404	\$ 2,806,683	\$ 3,330,390
315006 New Sewer Mains - Replacement Funded	643	\$ -	\$ 643,894	\$ -	\$ -	\$ -
315006 New Sewer Mains - Impact Funded	641	\$ -	\$ 215,322	\$ 1,145,582	\$ -	\$ -
-- New Lift Station - Impact Funded	641	\$ -	\$ -	\$ -	\$ -	\$ -
623014 Recycled Water MP / Supplemental Study 4	643	\$ 400,000	\$ -	\$ -	\$ -	\$ -
-- Estimated Future Projects ⁴	643	\$ -	\$ -	\$ -	\$ -	\$ -
Total: Capital Improvement Program Costs (Future-Year Dollars)		\$ 14,167,000	\$ 7,994,850	\$ 11,599,421	\$ 8,999,134	\$ 10,775,169

Total: CIP Costs (Current Year) Paid with Impact Fee Fund 641	641	\$ 11,921,000	\$ 4,830,243	\$ 8,710,282	\$ 7,745,557	\$ 9,133,467
Total: CIP Costs (Current Year) Paid with Replacement Fund 643	643	\$ 2,246,000	\$ 3,164,606	\$ 2,889,139	\$ 1,253,578	\$ 1,641,702
			84%			

FORECASTING ASSUMPTIONS:

Economic Variables	2016	2017	2018	2019	2020
Annual Construction Cost Inflation, Per Engineering News Record ⁷	0.00%	3.52%	3.52%	3.52%	3.52%
Cumulative Construction Cost Multiplier from 2016	1.00	1.04	1.07	1.11	1.15

1. Use of 2015 Revenue Bond Proceeds is identified in the Bond document provided by City staff; file: Bond Document- Morgan Hill Sewer Series 2015.pdf.
2. The City has Bond funding that will be used for projects listed in FY 2015/16; therefore this years expenditures are not reduced by the listed percentage.
3. Capital Improvement Program projects were provided via email July 10, 2015
file: CIP 10-Year Water and Sewer.xlsx.
4. This project was noted as Water Utility project, however funding is from the Sewer System Replacement Fund, therefore in the Sewer CIP
file: CIP 10-Year Water and Sewer.xlsx.
5. For purposes of this analysis, NBS has estimated future expenditures at \$1.8 million annually, in order to show some level of capital expenditures in the future.
This estimate should be confirmed/updated by the City.
6. Project costs are inflated by 3.62% per year, Engineering News Record estimates of construction cost inflation.
7. For reference purposes, the annual Construction Cost Inflation percentage is the 10 year average change in the Construction Cost Index for January 2005 to January 2015. Source: Engineering News Record website (<http://enr.construction.com>).

**CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Debt Service**

EXISTING DEBT OBLIGATIONS	Budget	Projected			
Annual Repayment Schedules:	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Sewer Revenue Bonds - 2015 - \$15,690,000 ¹					
Principal Payment	\$ -	\$ 1,260,000	\$ 1,315,000	\$ 1,375,000	\$ 1,445,000
Interest Payment	\$ 528,074	\$ 676,300	\$ 624,800	\$ 564,125	\$ 493,625
Subtotal: Annual Debt Service	\$ 528,074	\$ 1,936,300	\$ 1,939,800	\$ 1,939,125	\$ 1,938,625
Coverage Requirement (\$-Amnt above annual payment) ²	125%	125%	125%	125%	125%
Grand Total: Existing Annual Debt Service	\$ 528,074	\$ 1,936,300	\$ 1,939,800	\$ 1,939,125	\$ 1,938,625
Allocation of Debt Service Payments to Funding Sources ⁴					
Fund 640 & 643 (Rate Funded)	\$ 502,299	\$ 1,841,791	\$ 1,845,120	\$ 1,844,478	\$ 1,844,003
Fund 641 - (Impact Fee Funded)	\$ 25,775	\$ 94,509	\$ 94,680	\$ 94,647	\$ 94,622

1. The 2015 Sewer Bonds refunded the 2002 Bonds. File: Bond Document- Morgan Hill Sewer Series 2015.pdf
2. The Coverage Requirement for the 2015 Sewer Bonds is at least equal to 125% of the Maximum Annual Debt Service, taking into account all Parity Debt (Official Statement, page 19).
3. There is no Reserve Requirement for the 2015 Sewer Bonds (Official Statement, page 19).
4. Per the City's adopted FY 2015/16 budget, the debt service payment on the 2015 Sewer Revenue Bonds is split as follows: 5% to the Sewer Impact Fund (641, 71% to the operations fund and 25% to the Sewer System Replacement Fund (643) (average allocations used for FY 2015/16 - 2019/20 budget).

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Wastewater Rate Analysis

Current vs. Proposed Sewer Rates:

Sewer Rate Schedule	Current Rates	Proposed Rates with 2% Annual Increase				
		FY 2015/16 ¹	FY 2016/17 ²	FY 2017/18	FY 2018/19	FY 2019/20
		0.00%	2.00%	2.00%	2.00%	2.00%
Monthly Fixed Charges:						
Residential (5/8-1 inch meters)	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
All Other Customers:						
5/8 inch	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
3/4 inch	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
1 inch ³	\$18.54	\$18.54	\$18.91	\$19.29	\$19.67	\$20.07
1.5 inch	\$69.38	\$69.38	\$70.77	\$72.18	\$73.63	\$75.10
2 inch	\$110.47	\$110.47	\$112.68	\$114.93	\$117.23	\$119.58
3 inch	\$240.66	\$240.66	\$245.47	\$250.38	\$255.39	\$260.50
4 inch	\$432.27	\$432.27	\$440.92	\$449.73	\$458.73	\$467.90
6 inch	\$959.45	\$959.45	\$978.64	\$998.21	\$1,018.18	\$1,038.54
8 inch	\$1,482.18	\$1,482.18	\$1,511.82	\$1,542.06	\$1,572.90	\$1,604.36
10 inch	\$1,852.73	\$1,852.73	\$1,889.78	\$1,927.58	\$1,966.13	\$2,005.45
Volumetric Charges:						
Single-Family (Applied to <u>Avg. Winter</u> Water Use)	\$3.93	\$3.93	\$4.01	\$4.09	\$4.17	\$4.25
Multi-Family (Applied to <u>Avg. Winter</u> Water Use)	\$3.93	\$3.93	\$4.01	\$4.09	\$4.17	\$4.25
Commercial Charge (Applied to <u>Monthly</u> Water Use):						
Commercial 1	\$3.76	\$3.76	\$3.84	\$3.91	\$3.99	\$4.07
Commercial 2	\$4.40	\$4.40	\$4.49	\$4.58	\$4.67	\$4.76
Commercial 3	\$5.35	\$5.35	\$5.46	\$5.57	\$5.68	\$5.79
Commercial 4	\$6.07	\$6.07	\$6.19	\$6.32	\$6.44	\$6.57
Commercial 5	\$7.21	\$7.21	\$7.35	\$7.50	\$7.65	\$7.80
Commercial 6	\$12.03	\$12.03	\$12.27	\$12.52	\$12.77	\$13.02

1. A 3.5% rate increase effective January 1, 2016 was approved and adopted in a prior Proposition 218 process. Under this rate alternative, the City is not implementing these rates.

2. The first rate adjustment will be effective on January 1, 2017 and all subsequent increases will be effective on January 1st of each year thereafter.

3. The 1 inch commercial meter fixed charge is the set equal to the residential 1 inch meter charge.

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Wastewater Customer Statistics

Volume Statistics					
Customer Class	FY 2014/15 Avg. WINTER Water Use (hcf/mo.) ¹	FY 2014/15 Annual Water Consumption (hcf) ¹	Estimated Annual Volume (hcf/yr.) ²	Estimated Volume - % Annual Conservation (hcf/yr.)	Percent of Annual Volume
Single Family	76,044	N/A	912,526	912,526	61.6%
Multi Family	23,173	N/A	278,077	278,077	18.8%
Commercial 1	N/A	27,224	27,224	27,224	1.8%
Commercial 2	N/A	83,550	83,550	83,550	5.6%
Commercial 3	N/A	63,410	63,410	63,410	4.3%
Commercial 4	N/A	23,325	23,325	23,325	1.6%
Commercial 5	N/A	20,624	20,624	20,624	1.4%
Commercial 6	N/A	72,541	72,541	72,541	4.9%
Total	99,217	290,674	1,481,278	1,481,278	100.0%

1. Consumption data source: Billed Consumption Report by Month spreadsheets.
2. Estimated annual volume is based on average winter water consumption for SFR and MFR Water customers, and is equal to the annual water consumption for commercial customers.

Conservation Adjustment Factor (Winter conservation should be less than summer)	0.0%
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Customer Statistics by Customer Class				
Customer Class	Number of Accounts ¹	Percent of Total Accounts	Number of Billing Units ²	Percent of Total Billing Units
Single Family	9,162	76.9%	9,162	64.2%
Multi Family	1,988	16.7%	4,336	30.4%
Commercial 1	81	0.7%	81	0.6%
Commercial 2	385	3.2%	385	2.7%
Commercial 3	80	0.7%	80	0.6%
Commercial 4	96	0.8%	96	0.7%
Commercial 5	20	0.2%	20	0.1%
Commercial 6	98	0.8%	98	0.7%
Commercial Fixed Only	2	0.0%	2	0.0%
Total	11,912	100.0%	14,260	100.0%

1. Number of accounts is from the Billed Consumption Report by Month spreadsheets (Month of July).
2. Billing units provided by City staff in file: Multiple Unit Report.xlsx Actual number of accounts used for Commercial accounts.

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Wastewater Customer Statistics

Customer Statistics by Meter Size									
Number of Accounts by Customer Class and Meter Size ¹	5/8 inch	3/4 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	Total
Single Family	534	1,200	7,356	58	14	0	0	0	9,162
Multi Family	852	218	851	27	31	0	6	3	1,988
Commercial 1	5	9	24	9	24	0	10	0	81
Commercial 2	18	37	179	60	86	2	2	1	385
Commercial 3	7	8	30	10	20	2	3	0	80
Commercial 4	0	5	18	25	42	3	3	0	96
Commercial 5	2	2	8	3	5	0	0	0	20
Commercial 6	13	8	34	19	22	0	2	0	98
Commercial Fixed Only	0	0	2	0	0	0	0	0	2
Total	1,431	1,487	8,502	211	244	7	26	4	11,912

1. Per City's Billing Data as of June 2015.

CITY OF MORGAN HILL
WASTEWATER RATE STUDY
Wastewater Rate Analysis

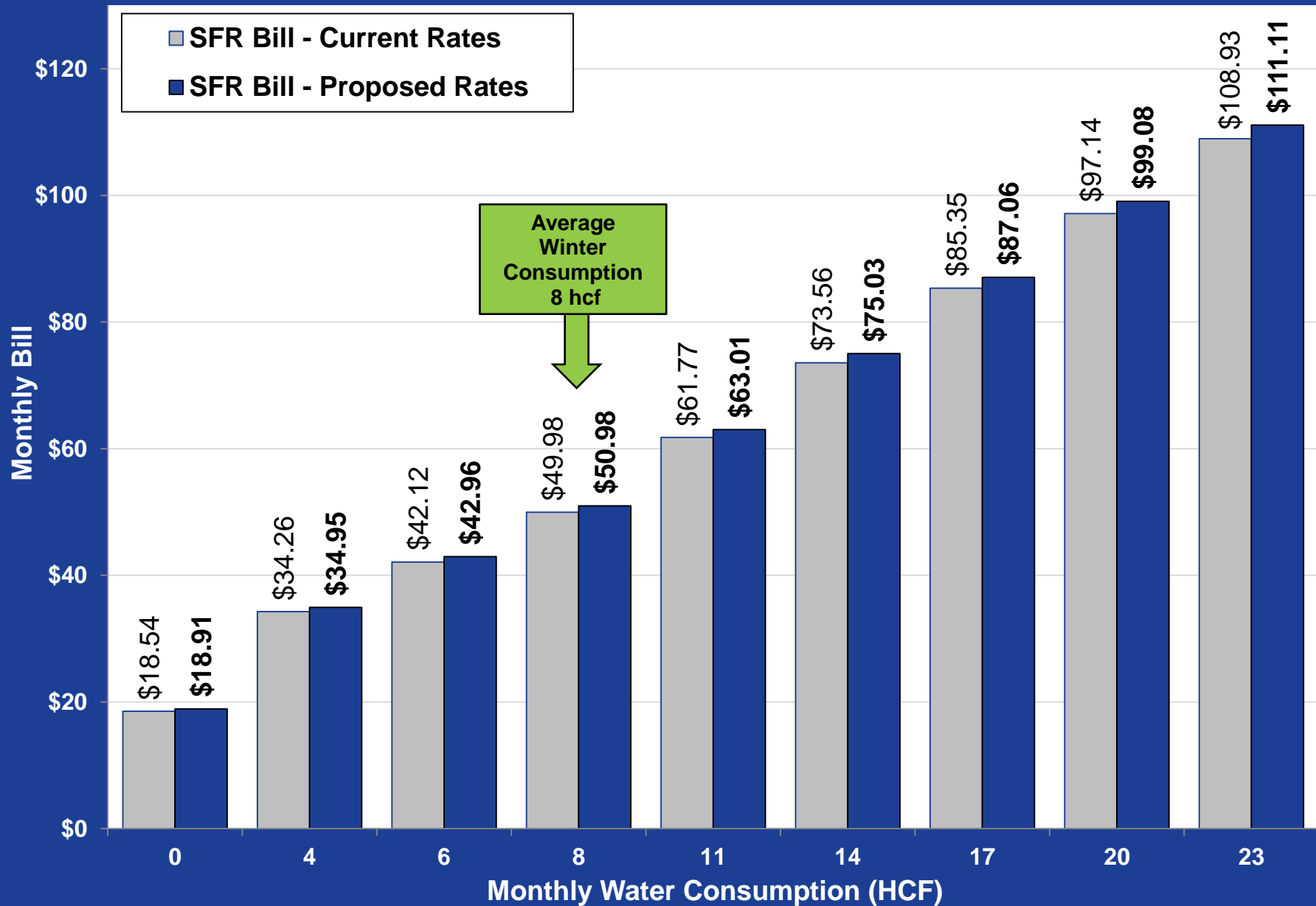
Customer Class	Adjusted Annual Volume Total (hcf)	Proposed Rate Revenue with 2% Annual Increase				
		FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Single Family	912,526	\$ 3,586,229	\$ 3,622,091	\$ 3,694,533	\$ 3,768,423	\$ 3,843,792
Multi Family	278,077	1,092,844	1,103,773	1,125,848	1,148,365	1,171,332
Commercial 1	27,224	102,362	103,386	105,454	107,563	109,714
Commercial 2	83,550	367,620	371,296	378,722	386,297	394,022
Commercial 3	63,410	339,244	342,636	349,489	356,478	363,608
Commercial 4	23,325	141,583	142,999	145,859	148,776	151,751
Commercial 5	20,624	148,699	150,186	153,190	156,254	159,379
Commercial 6	72,541	872,668	881,395	899,023	917,003	935,343
Zonal Surcharge Revenue (1)	-	14,550	30,264	31,475	32,734	34,043
Total Revenue from Variable Charges	1,481,278	\$ 6,665,799	\$ 6,748,025	\$ 6,883,591	\$ 7,021,892	\$ 7,162,985

Meter Size	# Meters by Size	Proposed Rate Revenue with 2% Annual Increase				
		FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Residential (5/8-1 inch meters)	11,011	\$ 2,449,727	\$ 2,474,225	\$ 2,523,709	\$ 2,574,183	\$ 2,625,667
All Other Customers:						
5/8 inch	45	\$ 10,012	\$ 10,112	\$ 10,314	\$ 10,520	\$ 10,731
3/4 inch	69	\$ 15,351	\$ 15,505	\$ 15,815	\$ 16,131	\$ 16,454
1 inch	295	\$ 65,632	\$ 66,288	\$ 67,614	\$ 68,966	\$ 70,345
1.5 inch	211	\$ 175,670	\$ 177,427	\$ 180,975	\$ 184,595	\$ 188,287
2 inch	244	\$ 323,456	\$ 326,691	\$ 333,225	\$ 339,889	\$ 346,687
3 inch	7	\$ 20,215	\$ 20,418	\$ 20,826	\$ 21,242	\$ 21,667
4 inch	26	\$ 134,868	\$ 136,217	\$ 138,941	\$ 141,720	\$ 144,554
6 inch	4	\$ 46,054	\$ 46,514	\$ 47,444	\$ 48,393	\$ 49,361
Total Revenue from Fixed Charges	11,912	\$ 3,240,985	\$ 3,273,395	\$ 3,338,863	\$ 3,405,640	\$ 3,473,753

Total Estimated Rate Revenue (w/o customer growth)	\$ 9,906,784	\$ 10,021,420	\$ 10,222,454	\$ 10,427,532	\$ 10,636,738
<i>Estimated Customer Growth %</i>	-	2.00%	2.00%	2.00%	2.00%
Total Estimated Rate Revenue (w/ customer growth)	\$ 9,906,784	\$ 10,221,848	\$ 10,635,441	\$ 11,065,781	\$ 11,513,547

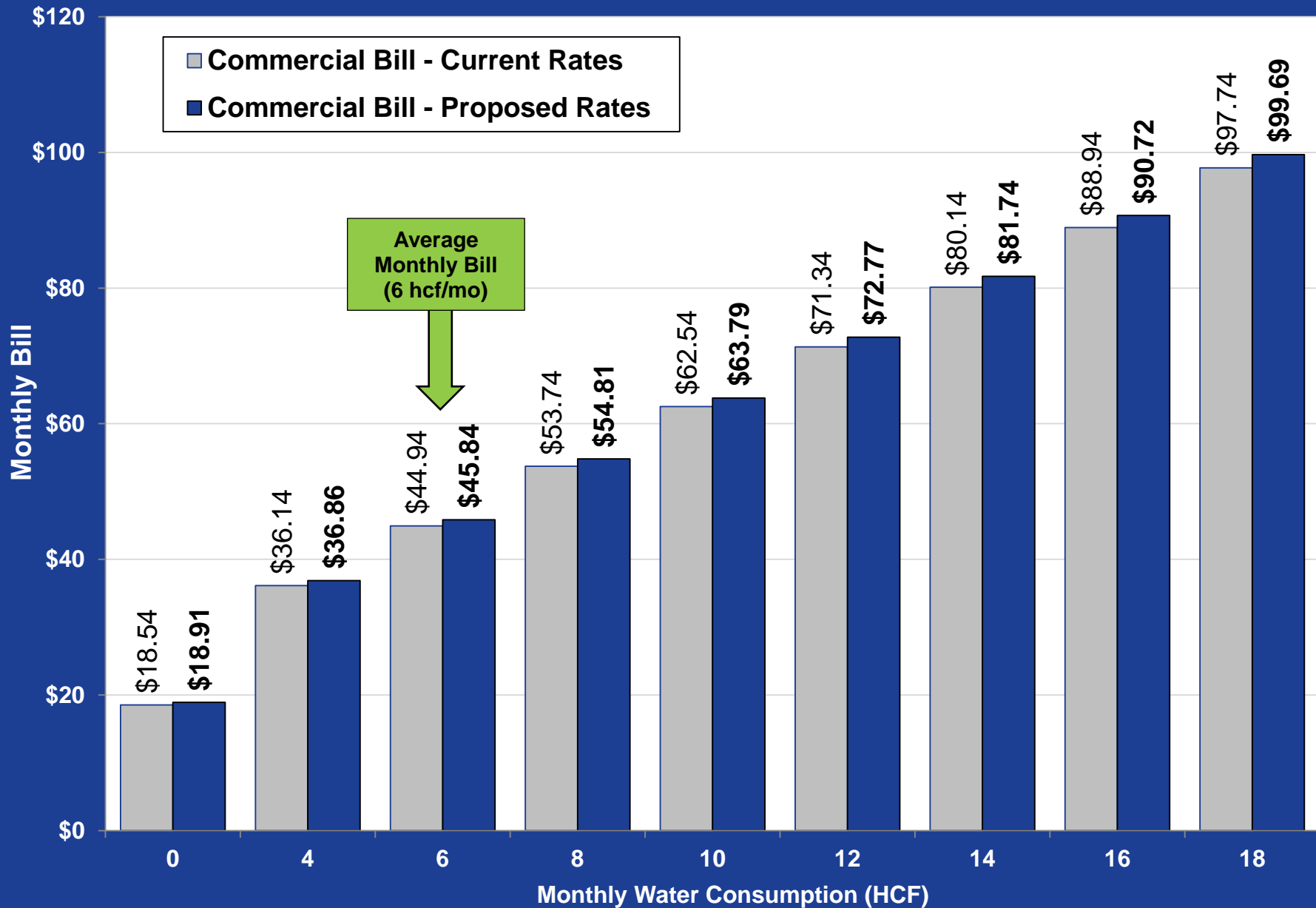
(1) Zonal surcharge revenue is from the separate zonal surcharges analysis, and incorporates projected cost increases in power costs.

Single-Family Residential Sewer Bill Comparison Current vs. Proposed Rates in FY 2016/17



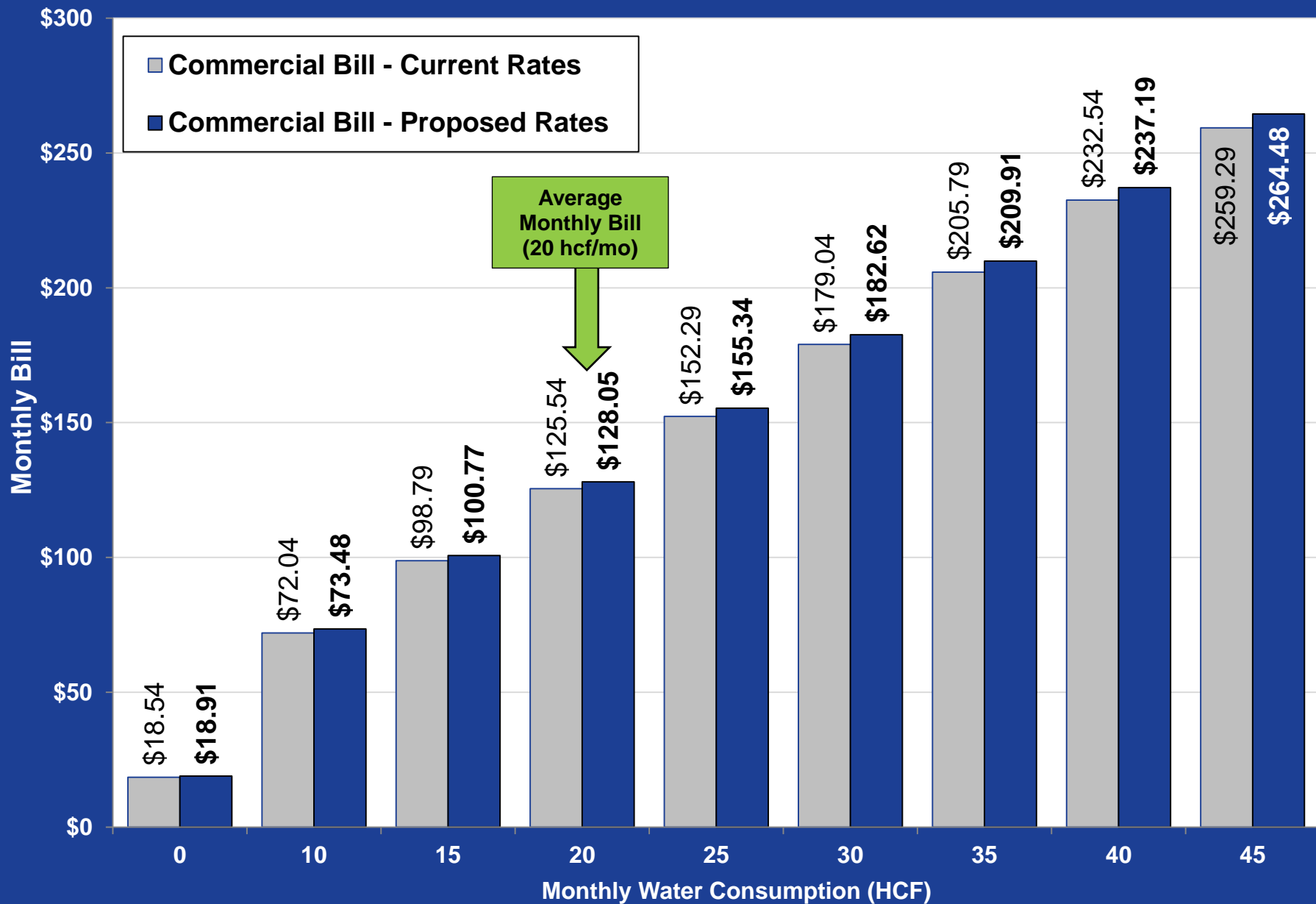
Commercial Sewer Bill Comparison

Current vs. Proposed Rates in FY 2016/17 *(Commercial 2, 1 inch meter)*



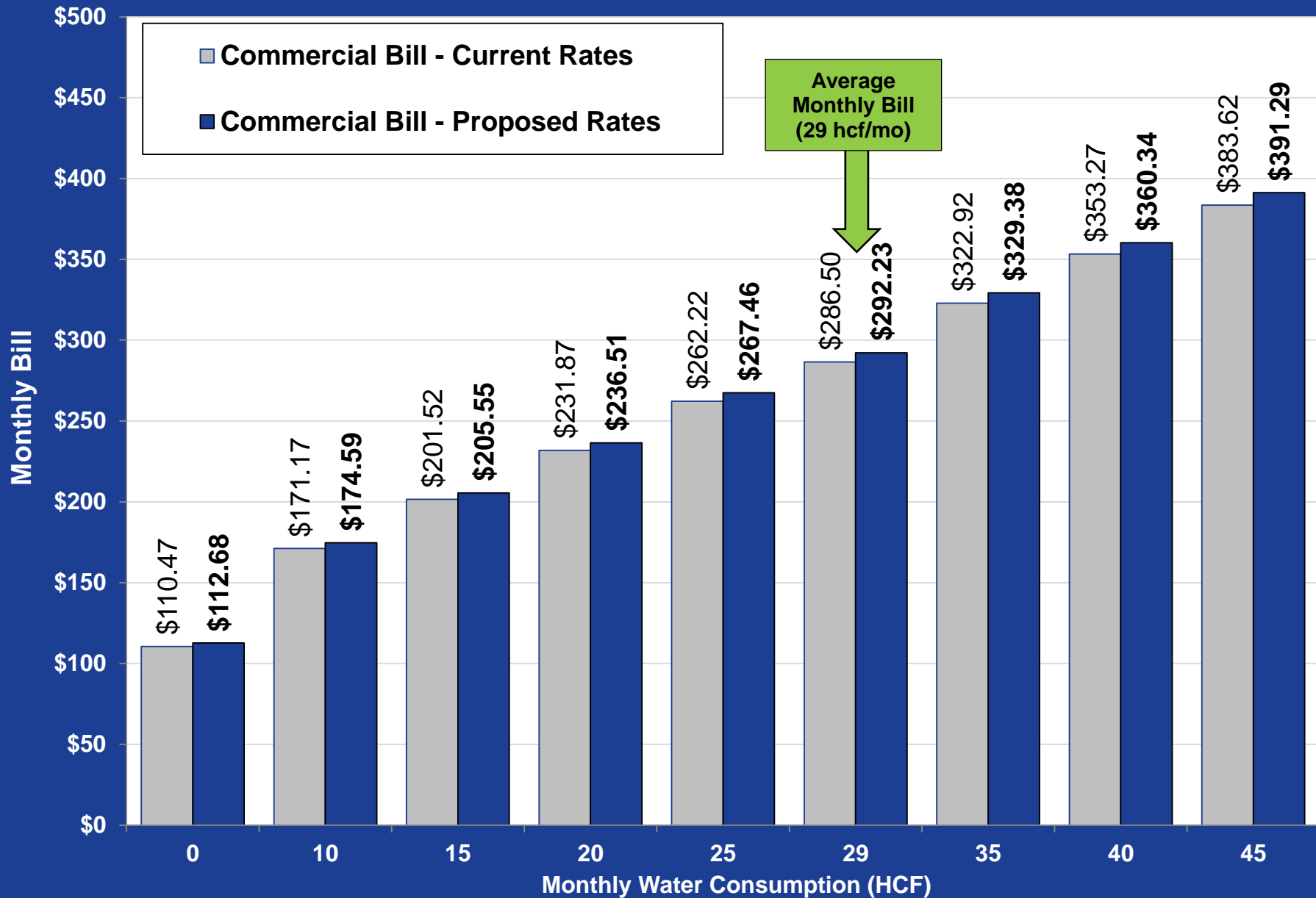
Commercial Sewer Bill Comparison

Current vs. Proposed Rates in FY 2016/17 *(Commercial 3, 1 inch meter)*

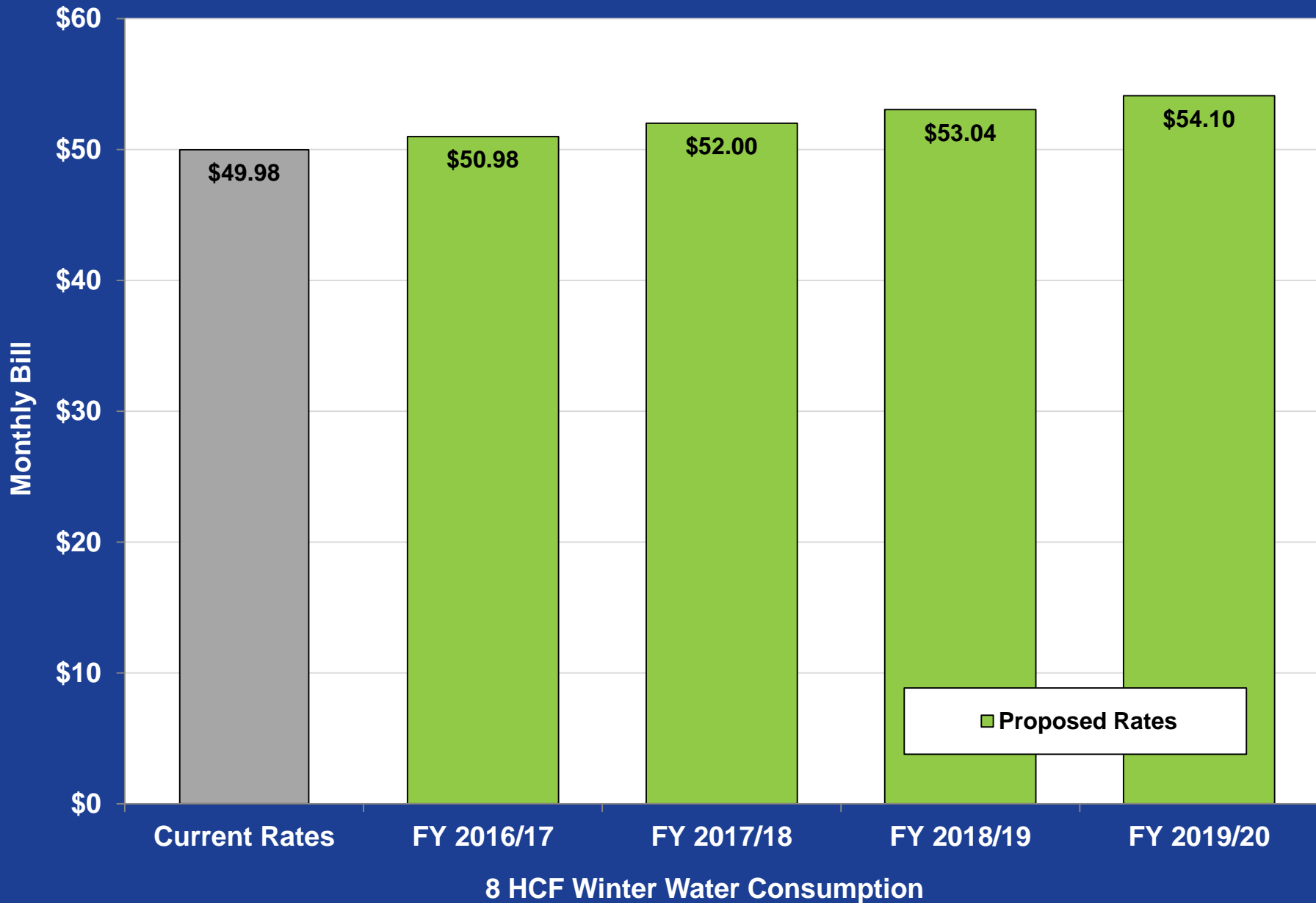


Commercial Sewer Bill Comparison

Current vs. Proposed Rates in FY 2016/17 *(Commercial 4, 2 inch meter)*



Average Single-Family Residential Bill Comparison Fiscal Years 2015/16 through 2019/20



APPENDIX C - ZONAL ELEVATION CHARGES ANALYSIS

CITY OF MORGAN HILL
WATER AND WASTEWATER RATE STUDY
Zonal Elevation Surcharges

Water Zonal Elevation Surcharges:

Water Enterprise Data Used in Calculation of Zonal Elevation Surcharges				
	Customer Statistics			Surcharge Costs
Elevation Zones	Number of Customers	Annual Flow (gal.)	Annual Flow (hcf)	Annual Power Costs
Zone 1 Booster Station	2,630	536,937,000	717,830	\$ 127,020
Zone 2 Booster Station	701	138,325,000	184,926	\$ 47,650
Zone 3 Booster Station	115	18,000,000	24,064	\$ 6,100
Total	3,446	693,262,000	926,821	\$ 180,770

Water Enterprise Zonal Surcharges								
	Surcharge Costs	FIXED SURCHARGES (for 50% of Power Costs)			VOLUMETRIC SURCHARGES (for 50% of Power Costs)			Total Revenue
Elevation Zones	Annual Power Costs	Number of Customers	Costs to Recover in Fixed Surcharge	Fixed Monthly Surcharge (\$/customer)	Annual Flow (hcf)	Costs to Recover in Volumetric Surcharge	Volumetric Surcharges (\$/hcf)	Fixed + Volumetric Revenue from Surcharges
All Zones	\$ 180,770	3,446	\$ 90,385	\$2.19	926,821	\$ 90,385	\$0.10	\$ 180,770
Total	\$ 180,770	3,446	\$ 90,385	--	926,821	\$ 90,385	--	\$ 180,770

CITY OF MORGAN HILL
WATER AND WASTEWATER RATE STUDY
Zonal Elevation Surcharges

Wastewater Zonal Elevation Surcharges:

Wastewater Enterprise Data Used in Calculation of Zonal Elevation Surcharges						
	Customer Statistics			Surcharge Costs		
Elevation Zones	Number of Customers	Annual Flow (gal.)	Annual Flow (hcf)	Annual Replacement of Facility Cost	Annual Power Costs	Total Costs to Recover in Surcharges
Zone 1 Lift Stations	1,476	54,609,000	73,006.68	\$ 125,000	\$ 18,100	\$ 143,100
Zone 2 Lift Stations	515	23,086,000	30,863.64	\$ 43,125	\$ 6,500	\$ 49,625
Zone 3 Lift Stations	80	4,773,000	6,381.02	\$ 13,125	\$ 4,500	\$ 17,625
Total	2,071	82,468,000	110,251	\$ 181,250	\$ 29,100	\$ 210,350

Wastewater Enterprise Zonal Elevation Surcharges						
FIXED SURCHARGES (for Facility Replacement & Power Costs)						
Elevation Zones	Annual Replacement of Facility Cost	Annual Power Costs	Total Costs to Recover	Number of Customers	Fixed Monthly Surcharge (\$/customer)	Revenue from Surcharges
All Zones	\$ 181,250	\$ 29,100	\$ 210,350	2,071	\$8.46	\$ 210,350
Total	\$ 181,250	\$ 29,100	\$ 210,350	2,071	--	\$ 210,350

CITY OF MORGAN HILL
WATER AND WASTEWATER RATE STUDY
Five-Year Projection of Zone-Specific Costs

Water Enterprise Five-Year Cost Projection:

Water Enterprise Calculation of Zonal Elevation Cost Increases over 5-year Period						
Cost Category	CPI Factor	2015/16	2016/17	2017/18	2018/19	2019/20
Power	4.00%	\$ 180,770	\$ 188,001	\$ 195,521	\$ 203,342	\$ 211,475
Total		\$ 180,770	\$ 188,001	\$ 195,521	\$ 203,342	\$ 211,475
Overall Cost Increase		--	4.0%	4.0%	4.0%	4.0%

Wastewater Enterprise Five-Year Cost Projection:

Wastewater Enterprise Calculation of Zonal Elevation Cost Increases over 5-year Period						
Cost Category	CPI Factor	2015/16	2016/17	2017/18	2018/19	2019/20
Power	4.00%	\$ 29,100	\$ 30,264	\$ 31,475	\$ 32,734	\$ 34,043
Facility Replacement	3.52%	\$ 181,250	\$ 187,630	\$ 194,235	\$ 201,072	\$ 208,149
Total		\$ 210,350	\$ 217,894	\$ 225,709	\$ 233,805	\$ 242,192
Overall Cost Increase		--	3.6%	3.6%	3.6%	3.6%

Inflation Factors Used in Rate Analysis & Applied to Zone Costs	
Energy/Power (1)	4.00%
Labor (1)	5.00%
Capital (2)	3.52%

(1) Inflation factor provided by City Staff.

(2) Inflation factor is the 10 year average change in the Construction Cost Index for January 2005 to January 2015. Source: Engineering News Record website (<http://enr.construction.com>).

CITY OF MORGAN HILL
WATER AND WASTEWATER RATE STUDY
5-Year Schedule of Zonal Elevation Surcharges

Water Enterprise

Water Enterprise Zonal Elevation Surcharges: Fixed and Volumetric Surcharges					
Elevation Zones	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
	<i>% Increase¹</i>	<i>4.0%</i>	<i>4.0%</i>	<i>4.0%</i>	<i>4.0%</i>
Fixed Monthly Surcharges (\$/customer)	\$2.19	\$2.27	\$2.36	\$2.46	\$2.56
Volumetric Surcharges (\$/hcf)	\$0.10	\$0.10	\$0.11	\$0.11	\$0.11

1. The Annual % increase is due to cost inflation applied to zone-specific costs.

Wastewater Enterprise

Wastewater Enterprise Zonal Elevation Surcharges: Fixed Surcharges					
Elevation Zones	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
	<i>% Increase¹</i>	<i>3.6%</i>	<i>3.6%</i>	<i>3.6%</i>	<i>3.6%</i>
Fixed Monthly Surcharges (\$/customer)	\$8.46	\$8.77	\$9.08	\$9.41	\$9.75

1. The Annual % increase is due to cost inflation applied to zone-specific costs.